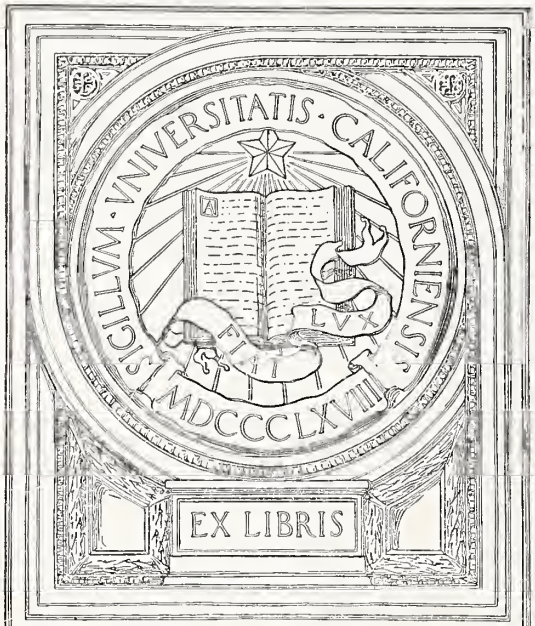
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Arizona Medicine

JOURNAL OF ARIZONA MEDICAL ASSOCIATION
MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

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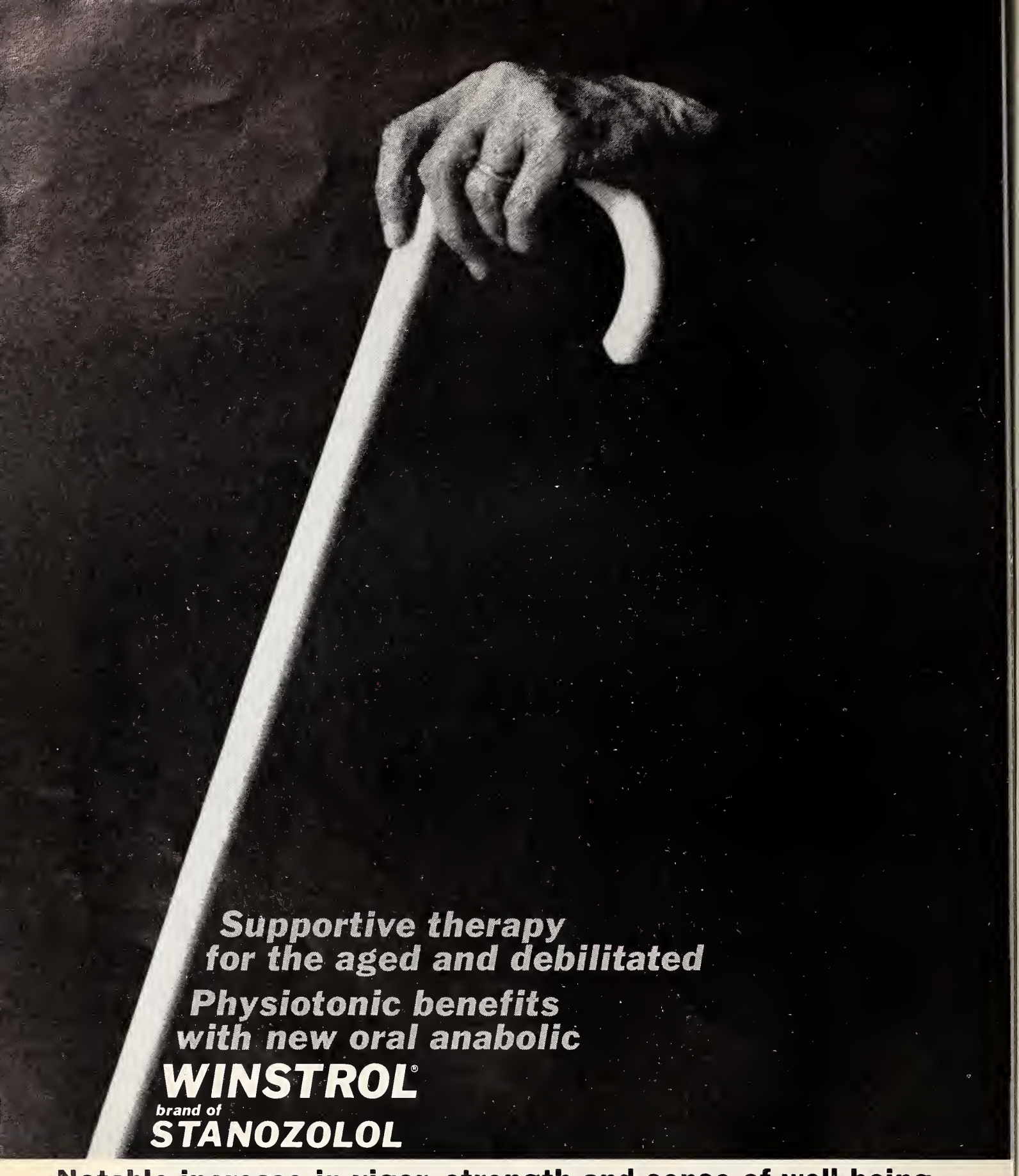
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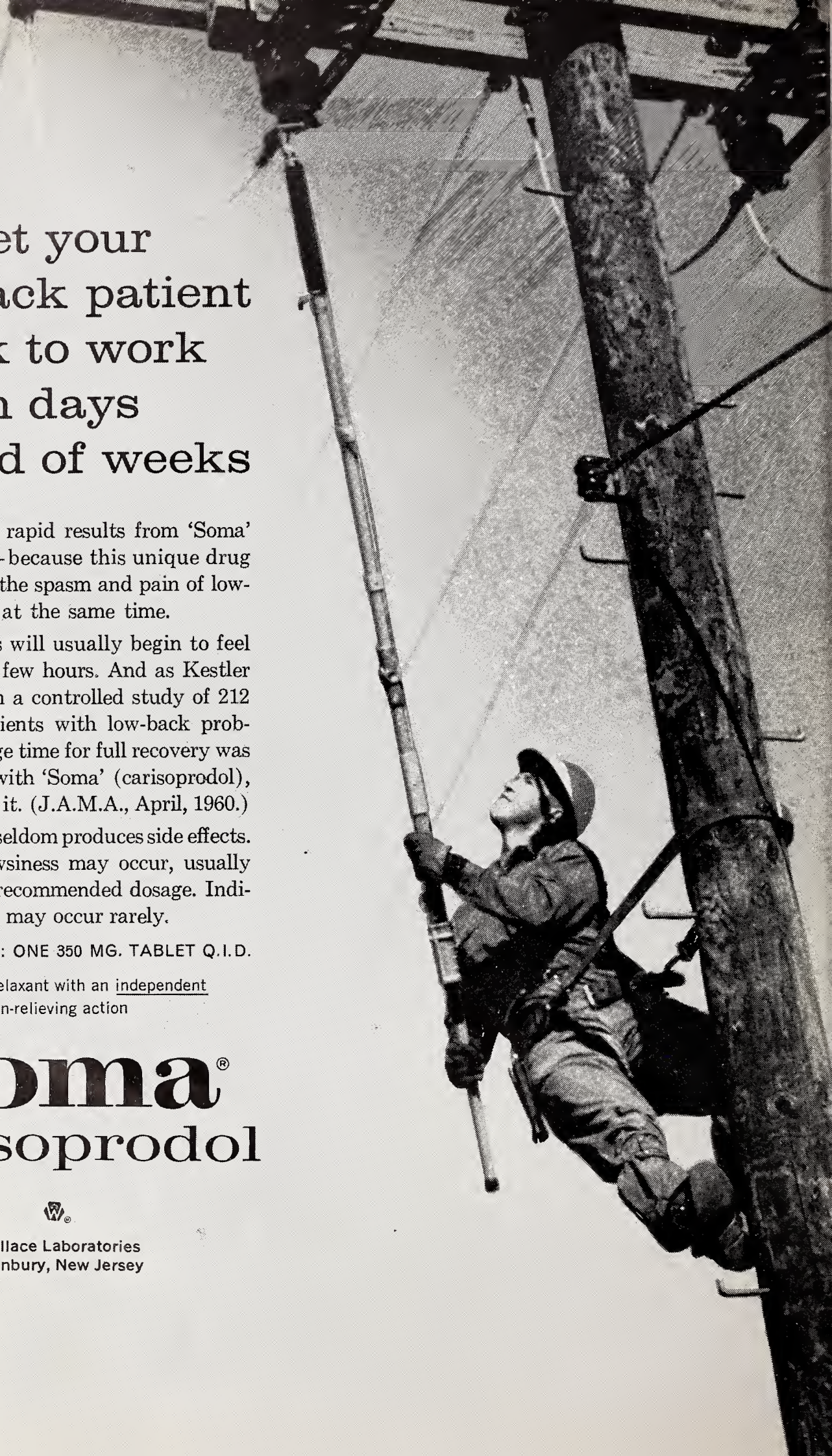
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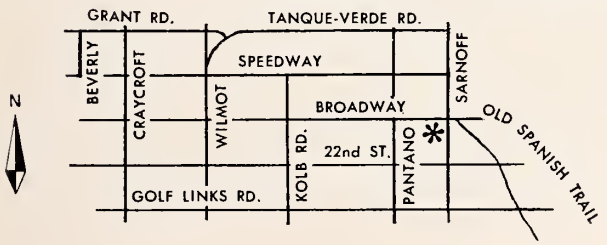
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99 West Northview, Phoenix 21, Arizona

Health Careers Mrs. Boris Zemsky (Zora)
Route 8, Box 837, Tucson, Arizona

Historian Mrs. Melvin Phillips (Jean)
1001 Norris Road, Prescott, Arizona

Legislation Mrs. Everett Dean (Bobbie)
310 West State Avenue, Phoenix 21, Arizona

Mental Health Mrs. Robert F. Lorenzen (Joe Ann)
5336 East Rockridge Road, Phoenix 18, Arizona

Nominating Mrs. Frederick W. Knight (Mary)
618 Central Avenue, Safford, Arizona

Parliamentarian Mrs. Hiram Cochran (Mary)
35 North Camino Espanol, Tucson, Arizona

Publications (Newsletter) Mrs. Richard P. Timmons (Evelyn)
5302 North 69th Place, Scottsdale, Arizona

Safety Mrs. Fred Landeen (Rae)
4747 East Fort Lowell Road, Tucson, Arizona

Student Nurse Loan Fund Mrs. Howard M. Purcell (Pauline)
100 East Ocotillo Road, Phoenix 12, Arizona

COUNTY PRESIDENTS 1963-64

Coconino County Mrs. John Vosskuhler
1226 North Navajo Drive, Flagstaff, Arizona

Gila County Mrs. Ellis L. Pollock
Post Office Box 1745, Miami, Arizona

Maricopa County Mrs. George Scharf
6301 North 20th Street, Phoenix 16, Arizona

Pima County Mrs. Hubert Estes
6911 Soyaluna Place, Tucson, Arizona

Yavapai County Mrs. Richard Hardenbrook
306 Grove Avenue, Prescott, Arizona

Yuma County Mrs. Charles Mattheus
2148 East 25th Place, Yuma, Arizona

SOCIEDAD MEDICA DE ESTADOS UNIDOS DE NORTE AMERICA Y MEXICO
MEDICAL SOCIETY OF THE UNITED STATES & MEXICO

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1014 N. Country Club Road, Tucson, Arizona

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Avenida Alemania No. 535, Guadalajara, Jal., Mexico

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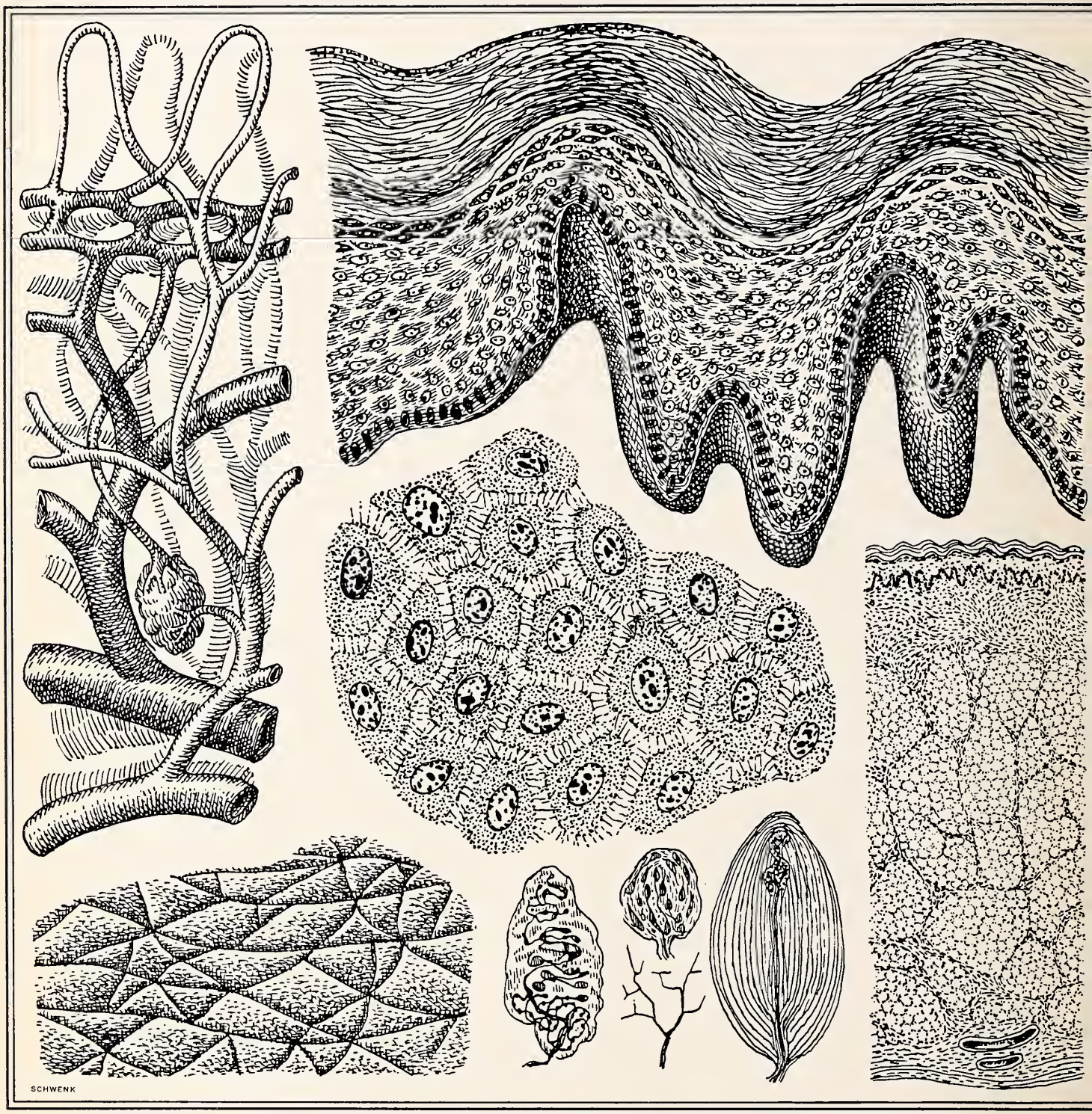
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RESUME'
of the
HOUSE OF DELEGATES—1963 ANNUAL MEETING
MAY 3, 1963

Adjourned meeting of the House of Delegates of The Arizona Medical Association, Inc. held in the Terrace Room of the Pioneer Hotel, Tucson, Arizona, Friday, May 3, 1963, convened at 3:05 P.M., Paul B. Jarrett, M.D., Speaker of the House, presiding.

Credentials

The Committee on Credentials reported a quorum present and the House duly constituted.

Roll Call

On the roll call, 68 Delegates (or alternates) and 18 members of the Board of Directors, were present.

Minutes

Minutes of the meeting of the House of Delegates held May 1, 1963, were approved without reading.

Election of Officers

The following officers were elected for a term of one year:

President-elect W. Albert Brewer, M.D.
Vice President James E. O'Hare, M.D.
Secretary Charles E. Henderson, M.D.
Treasurer Arthur V. Dudley, Jr., M.D.
Speaker of the House Walter Brazie, M.D.
Editor-in-Chief Robert F. Lorenzen, M.D.
Delegate to AMA Dermont W. Melick, M.D.
Alternate Delegate to AMA
.....Daniel T. Cloud, Jr., M.D.

Reference Committee on Amendments

Report of the Reference Committee on Amendments as deleted and amended, was adopted with the following actions taken on motions regularly made and carried.

1. Amendment to Article VII of the Articles of Incorporation of The Arizona Medical Association, Inc.

WHEREAS, the First Regular Meeting of the House of Delegates of the Association has been called for 1:00 o'clock P.M. Wednesday, May 1, 1963, at Hotel Pioneer, Tucson, Arizona to consider, among other matters, an amendment to Article VII of the Articles of Incorporation of the Association; and

WHEREAS, the purpose of said amendment is to provide for an increase of the upper limit (from 25 to 35) of the membership of the Board of Directors of the Association; and

WHEREAS, Article X of the Articles of Incorporation provides that the Articles of Incorporation can be amended only by an affirmative vote of a majority of the members of the House of Delegates present at a meeting called for that purpose and effected in accordance with said Article X;

NOW THEREFORE BE IT RESOLVED by the House of Delegates of The Arizona Medical Association, Inc., that the first paragraph of Article VII of the Articles of Incorporation of the Association shall be, and it is hereby, amended to read as follows:

"ARTICLE VII

The control and management of the affairs of this corporation shall be vested in a board of directors of not less than five nor more than thirty-five members elected as provided in the By-Laws and the names of those selected to serve beginning with the incorporation of this corporation and until their successors shall be chosen are:"

It was regularly moved and carried that this amendment be adopted.

2. Amendment to the Articles of Incorporation Limiting the Total Membership of the Board of Directors — Article VII

WHEREAS, the Articles of Incorporation currently limit the membership of the Board of Directors to twenty-five members as provided in Article VII, and

WHEREAS, it appears that election of members of the Board as provided in Article VII and Chapter V, Section 7 of the By-Laws will exceed that number prior to the 1964 Annual Meeting, and

WHEREAS, the Articles of Incorporation and By-Laws Committee believes this of significant interest to the legal standing of the actions of the Board of Directors of The Arizona Medical Association, Inc., now therefore be it

RESOLVED, that Article VII, of the Articles of Incorporation of The Arizona Medical Association, Inc. as amended in 1959, be amended to read that "The control and management of the affairs of this corporation shall be vested in a Board of Directors of not less than five nor more than thirty-five members elected as provided in the By-Laws and the names of those selected to serve beginning with the incorporation of this corporation and until their successors shall be chosen are:

Dr. Robert E. Hastings
Dr. Harry T. Southworth
Dr. H. D. Ketcherside
Dr. Frank J. Milloy
Dr. C. E. Yount, Jr.
Dr. Harry E. Thompson
Dr. Jesse D. Hamer
Dr. Thomas H. Bate
Dr. A. I. Podolsky
Dr. Walter Brazie
Dr. Herbert B. Potthoff
Dr. Preston T. Brown
Dr. Robert S. Flinn
Dr. Harold W. Kohl
Dr. Donald E. Nelson
Dr. Hugh C. Thompson

The above directors were elected at a meeting held in Phoenix, Arizona, on the 3rd day of May, 1950.

The Board of Directors shall have the right to fill any vacancy of the Board of Directors in the manner provided in the By-Laws. The Board of Directors shall have full power to make proper rules and regulations for the transaction of the affairs of the corporation not inconsistent with the By-Laws.

The Reference Committee recommended that no action be taken on Amendment No. 2, in that its intent is exactly the same as Amendment No. 1.

This portion of the Committee's report was adopted.

3. Amending Chapter IV, Section 1, Who are Officers: — of the current By-Laws of The Arizona Medical Association, Inc., to provide that the Alternate Delegates to the AMA be Officers and members of the Board of Directors of The Arizona Medical Association, Inc.

WHEREAS, at the present time the Alternate Delegates to AMA may not be a delegate to the House of Delegates of The Arizona Medical Association, Inc. the year following his elevation to that position, and

WHEREAS, in such event he would not be eligible to election to the office of Delegate to AMA, and

WHEREAS, being a non-member of the Board of Directors of The Arizona Medical Association, Inc. he is placed in the position whereby the true purpose of being an Alternate Delegate to AMA cannot be carried out, now therefore, be it

RESOLVED, that Chapter IV, Section 1. Who Are Officers: — of the By-Laws of The Arizona Medical Association, Inc. be amended to read, "The following shall be the officers of this Association: a Past-President, a President, a President-elect, a Vice President, a Secretary, a Treasurer, a Speaker of the House, an Editor-in-Chief, the Delegate(s) to the American Medical Association, the Alternate Delegate(s) to the American Medical Association, and the District Directors. All of the officers shall be members of and shall constitute the Board."

The Reference Committee on Amendments recognized the problem inherent in this proposed amendment; however, in the face of the expanding medical population in the State of Arizona and its proportionate effect on the Board of Directors of The Arizona Medical Association, Inc. and after hearing evidence presented on both sides of the question, the committee was of the opinion

that the addition of the two Alternate Delegates to the presently constituted Board of Directors, could further add to the more and more evident unwieldiness of this Board; and since the President of The Arizona Medical Association, Inc. has appointed an ad hoc Committee to study this problem in the coming year, the committee recommended that action on this amendment be postponed for one year and until after the ad hoc Committee report has been received at that time.

This portion of the Committee's report was adopted.

4. Chapter V. Section 5, Nominations of the By-Laws of The Arizona Medical Association, Inc.

WHEREAS, the current By-Laws of The Arizona Medical Association, Inc., Chapter V, Section 5, Nominations: — provides in part that. . . . "each county society shall select one of their members (with the exception of Pima and Maricopa societies which shall each select two of their members) to form a Nominating Committee. . . . ", and

WHEREAS, it is difficult to insure representation from each of the county societies under those conditions, and WHEREAS, it is deemed important that each of the county societies take part and be heard in the selection of their official nominees, now therefore, be it

RESOLVED, that the first sentence of Chapter V, Section 5, Nominations of the By-Laws of The Arizona Medical Association, Inc.: — be amended by insertion of a comma replacing the period and adding the phrase, "and each shall have an alternate".

It was regularly moved and carried that this amendment be adopted.

5. Amendment to Chapter VII, Section 4, Subsection (1), Scientific Assembly Committee: — of the By-Laws of The Arizona Medical Association, Inc.

WHEREAS, Chapter VII, Section 4, Subsection (1), Scientific Assembly Committee of the current By-Laws of The Arizona Medical Association, Inc. require inclusion of the President-elect as consulting co-chairman, and WHEREAS, a co-chairmanship of the Scientific Assembly Committee has proved inadequate, unsatisfactory and created confusion in planning the Annual Meeting during the preceding two years, now therefore be it

RESOLVED, that this House of Delegates amend the By-Laws of The Arizona Medical Association, Inc. in Chapter VII, Section 4, Subsection (1) Scientific Assembly Committee, the first sentence thereof to read, "This committee shall consist of at least nine members appointed by the President with the approval of the Board of Directors, including the President-elect and the Vice President as members".

It was regularly moved and carried that this amendment be adopted, as amended.

6. Amendment to Chapter VII, Section 4, Subsection (i), Professional Liaison Committee: — of the By-Laws of The Arizona Medical Association, Inc.

WHEREAS, Chapter VII, Section 4, Sub-section (i) Professional Liaison Committee: — of the current By-Laws of The Arizona Medical Association, Inc., provide that "This committee shall consist of a chairman and at least six members. Each of the members shall be chairman of a subcommittee dealing with each of the groups with whom liaison is necessary. The members of the subcommittees shall be chosen by the chairman of the committee with the advice of the members of the committee. The groups with whom liaison is necessary include, but are not limited to, the following: Osteopaths, Veterans Administration medical staffs, Nurses, Schools, and the Women's Auxiliary to the Arizona Medical Association," and

WHEREAS, such structure of the Professional Liaison Committee has been at times unwieldy and in conflict with the activities of the Professional Committee of this Association, now therefore, be it

RESOLVED, that Chapter VII, Section 4, Subsection (i) Professional Liaison Committee of the current By-Laws of The Arizona Medical Association, Inc. be amended to read, "This committee shall consist of a chairman and at least six members. Each of the members shall be selected for dealing with each of the groups with whom liaison is necessary.

The groups with whom liaison is necessary include, but are not limited to, the following: Osteopaths, Veterans Administration medical staffs, Nurses, Public Health, Schools, and the Woman's Auxiliary to the Arizona Medical Association."

The Reference Committee recommended that the amendment be tabled. The recommendation was adopted.

The Reference Committee further recommended that the President appoint an ad hoc Committee to study the entire committee structure of The Arizona Medical Association, Inc., within a period of time which would allow any desired changes in the By-Laws, to be made at the next Annual Meeting. The recommendation was adopted.

THE REPORT OF THE REFERENCE COMMITTEE AS A WHOLE, AS DELETED AND AMENDED, WAS ADOPTED.

REFERENCE COMMITTEE ON RESOLUTIONS

Report of the Reference Committee on Resolutions as deleted and amended was adopted with the following actions taken on motions regularly made and carried.

7. Proposed Budget of Revenue and Expenditures—1964.

The proposed budget of revenue and expenditures for 1964, Resolution No. 7, as introduced by Arthur V. Dudley, Jr., M.D., Treasurer and the Board of Directors, indicating an anticipated income of $178,680.40 and anticipated expenditures of $164,817.28 and providing for a contingency fund, were considered by the House and recommended that this portion of the committee's report be adopted. The report was adopted.

8. Physical Conditioning of Young Athletes.

WHEREAS, the Cochise County Medical Society is aware of the great progress made over the past decade in the design and improvement of protective athletic equipment, especially in the sport of football, and

WHEREAS, the Society is aware of the continuing research that the industry is following to improve their product and its safety factor for the protection of the prospective user, and

WHEREAS, the Society acknowledges the research of many leading educational institutions in the field of design and improvement of athletic equipment and their efforts to decrease injury to those participating in sports, and being aware of the recent articles by leading authorities in the field concerning the problems involved in prep-school athletics, now therefore be it

RESOLVED on motion properly made, seconded and unanimously carried, that The Arizona Medical Association, Inc. urge the Arizona Inter-Scholastic Association to implement rules and regulations permitting training of football participants one week prior to the present training schedule of the fall term, provided however, that such training shall be limited to calisthenics, kicking and throwing and running, and no football equipment except football shoes shall be allowed during this period, it being the objective to obtain physical conditioning during this period rather than football excellence, now be it further RESOLVED that a copy of this resolution be sent to the Arizona Inter-Scholastic Association, and the American Medical Association.

It was regularly moved and carried that this resolution be adopted.

9. Tumor Tissue Registry of Arizona.

WHEREAS, the State of Arizona is rapidly increasing in general population, as well as in medical population, and WHEREAS, this necessitates the expansion of medical education facilities in the State of Arizona, and

WHEREAS, the Arizona Division of the American Cancer Society and the Arizona Society of Pathologists are supporting the establishment of the Tumor Tissue Registry of Arizona for the collection and correlation of pathological material related to cancer from the State of Arizona as an adjunct to general cancer registry, and

WHEREAS, this registry will serve the State in the pro-

vision of education opportunities for pathologists, residents in pathology and all other physicians and provide material for research in neoplastic disease, now
THEREFORE BE IT RESOLVED that the Arizona Medical Association gives its approval of the Tumor Tissue Registry of Arizona, sponsored by the Arizona Division of the American Cancer Society, for the furtherance of education and research in the State of Arizona.

It was regularly moved and carried that this resolution be adopted.

10. Hospital Developments in Arizona.

WHEREAS the Arizona Medical Association is vitally concerned with the orderly development of excellent hospital facilities in Arizona, and
WHEREAS, some undesirable hospital promotions in Arizona have resulted in inadequate physical plants, financial difficulties for these facilities, and considerable publicity unfavorable to the medical profession and to bona fide hospital development programs, and
WHEREAS, appropriate steps to prevent such undesirable hospital promotions must logically arise in the State Government, therefore be it
RESOLVED, that the Arizona Medical Association go on record as deploring undesirable hospital promotions, and be it further
RESOLVED, that the President of the Arizona Medical Association be directed to draft letters to the Governor of Arizona, to the Arizona Senate and House of Representatives and the Arizona Corporation Commission and the State Department of Public Health, emphasizing the Arizona Medical Association's great concern with this matter and urging the state government to promptly adopt appropriate measures for prevention of any future similar promotions, and be it further
RESOLVED, that the President and Board of Directors of the Arizona Medical Association be directed to maintain close surveillance on hospital developments in Arizona, and take any action they may consider appropriate in accordance with the contents of this resolution.

It was regularly moved and carried that this resolution be adopted.

11. The Establishment of a Medical Student Loan Program with the Valley National Bank
WHEREAS, the Benevolent and Loan Fund Committee has been unable to continue the medical student loan program due to a shortage of funds, and
WHEREAS, it is desirable to continue this loan program for reasons previously set forth, and
WHEREAS, the Valley National Bank has now proposed to establish a loan program for Arizona medical students, patterned after the AMAERF program, which would allow the loan of twelve dollars and fifty cents ($12.50) for each one dollar ($1.00) maintained in a guarantee fund, now therefore, be it
RESOLVED that the President of the Arizona Medical Association be authorized to take the necessary steps to establish said loan program in cooperation with the Valley National Bank, and be it further,
RESOLVED, that the President of the Arizona Medical Association draft a letter to the President of the Valley National Bank expressing the appreciation of the Society for the bank's interest in this matter.

It was regularly moved and carried that this resolution be adopted.

12. A Department of General Practice included in the Formation of a Medical School in Arizona
WHEREAS, the Arizona Medical Association has previously gone on record as favoring the building of a medical school in the State of Arizona, and
WHEREAS, the purpose of said school would be to educate and direct more doctors into the practice of medicine in the State of Arizona, and
WHEREAS, there is an ever increasing need for general practitioners or family physicians, and
WHEREAS, the Arizona Academy of General Practice has gone on record officially as desiring that a Department of General Practice be established in the medical school in whatever location it is eventually built,
BE IT THEREFORE RESOLVED, that the Arizona Medical Association go on record as favoring the establishment of a Department of General Practice if and when a four-year medical school is developed in the State of Arizona, and
BE IT FURTHER RESOLVED, that the Secretary of the Arizona Medical Association be instructed to send a copy of this resolution to the Chairman of the Board of Regents of the Universities in our State.

It was regularly moved and carried that this resolution be adopted.

13. Expansion of the Board of Trustees of the American Medical Association
WHEREAS, the AMA ad hoc Committee on the Board of Trustees has recommended amending the consitiution and by-laws of the AMA to expand the Board of Trustees from eleven (11) to fifteen (15) members, and modify their term of office, and
WHEREAS, this amendment is scheduled to come to vote in the June, 1963 meeting of the AMA House of Delegates, therefore be it
RESOLVED, that the Arizona Medical Association go on record as being in favor of increasing the number of the Board of Trustees, and opposed to increasing their term of office, and be it further
RESOLVED, that the Arizona delegates to the AMA be instructed to speak and vote in accordance with the opinion expressed in this resolution.

It was regularly moved and carried that this resolution be adopted.

14. Compensation of Interns and Residents
WHEREAS, a special report on the compensation of interns and residents, published in the October 27, 1962, issue of JAMA has been presented to the AMA House of Delegates for consideration and action in the June, 1963 AMA meeting of the House of Delegates, and
WHEREAS, the AMA House of Delegates has requested all delegates, hospital staffs, and medical societies to forward opinions relative to this report, therefore be it
RESOLVED, that the Arizona Medical Association go on record as being in favor of increased compensation for interns and residents in accordance with the reasoning expressed in the special report, but opposed to accomplishing this by any type of allocation of fees collected from private patients from insurance or other sources, and be it further
RESOLVED, that the Arizona Medical Association believes that whatever recommendations are made in this regard on the national level, final solutions should be at the discretion of local hospital authorities, and be it further
RESOLVED, that the Arizona delegates to the AMA be instructed to speak and vote on this matter in accordance with the opinions expressed in this resolution, and be it further
RESOLVED, that the Secretary of the Arizona Medical Association promptly forward copies of this resolution to the Council on Medical Education and Hospitals, the Council on Medical Service of AMA and to the Executive Vice President of the American Medical Association.

It was regularly moved and carried that this resolution be adopted.

15. Laboratories Should be Supervised by Qualified, Licensed Physicians
WHEREAS, the practice of pathology, both clinical and anatomical, has been declared repeatedly to be the practice of medicine by the American Medical Association, by state and county medical societies, by the College of American Pathologists, and other special professional societies, by courts of record having certain legal jurisdictions, and by opinions of record of attorneys general of certain states; and
WHEREAS, there are medical laboratory technicians and other non-professional persons operating independent medical laboratories on a commercial basis without medical licensure, without adequate education or training, and without proper professional supervision; and
WHEREAS, persons operating such commercial labora-

tories are not constrained by law or by their education and training to adhere to professional ethical principles guarding the public interest; and
WHEREAS, such commercial laboratories frequently charge fees to physicians under conditions fostering the division of fees between the laboratory and the referring physician; and
WHEREAS, it is desirable to encourage scientists of professional status, such as chemists and bacteriologists with doctoral degrees to work co-operatively with physicians for the welfare of patients and in the interest of public health; and
WHEREAS, the independent practice of laboratory medicine, generally known as pathology, by persons without medical licensure degrades the practice of medicine and of pathology in particular, is against the public interest and seriously lowers the medical and scientific standards of medical practice; and
WHEREAS, the continued operation of commercial medical laboratories operated by unqualified persons is not possible without the patronage of the medical profession; and
WHEREAS, the medical profession generally has always placed the common good above self interest and has adhered to ethical and moral principles, therefore, be it
RESOLVED, that the Arizona Medical Association hereby declares that the proper conduct of laboratory analyses is a medical professional responsibility and all specimens for such analysis should be referred to laboratories supervised by licensed doctors of medicine.

This portion of the committee's report was **NOT** adopted.

16. Reappointment of an ad hoc Committee to Study Alignment of Blue Shield to Include Payment for Pathology, Radiology, and Anesthesiology Services
WHEREAS, the Arizona Medical Association House of Delegates adopted a rsolution (Resolution 5) recommending study for the orderly alignment of Blue Shield to provide payment for all medical services of patients in Arizona including pathology, radiology and anesthesiology at its Annual Meeting April 27, 1962; and
WHEREAS, implementation of this resolution by formation of the ad hoc committee was carried out late in the year with insufficient time for development of the study; and
WHEREAS, the Blue Shield-Blue Cross administrators were unable to provide the ad hoc Committee with required information at the requested time; and
WHEREAS, the ad hoc Committee believes this study is indicated in the best interests of patient care and the medical profession; and
WHEREAS, the situation and conditions defined in the intitial embodying resolution have not materially changed; be it
RESOLVED that the House of Delegates of the Arizona Medical Association reaffirms Resolution 5 adopted at the Annual Meeting of April 27, 1962; and be it further
RESOLVED that the House of Delegates authorize the President of the Arizona Medical Association to reappoint an ad hoc Committee to study and make recommendations for the orderly alignment of Blue Shield to include payment for pathology, radiology and anesthesiology services of patients in Arizona; and be it further
RESOLVED that the Arizona Hospital Association be invited to appoint a similar committee to meet and discuss this problem with an ad hoc committee from the Arizona Medical Association; and be it further
RESOLVED, that this ad hoc committee be requested to submit a report of their activities at the next meeting of this House of Delegates.

It was regularly moved and carried that this resolution be adopted.

17. The Appointment of an Ad Hoc Committee for Blue Shield Appraisal
WHEREAS, Arizona Blue Shield and Blue Cross have provided to their subscribers the finest health and accident insurance available, and
WHEREAS, it is the responsibility of Arizona physicians to continually seek ways of improving the Arizona Blue Shield and Blue Cross plans, now therefore be it
RESOLVED, that the President of the Arizona Medical Association appoint forthwith an ad hoc Committee charged with the responsibility of immediately conducting a full appraisal of Arizona Blue Shield and be it futher
RESOLVED, that the chairman of the ad hoc Committee be instructed to negotiate appropriate cooperative measures with Blue Cross officials for conduction of this appraisal, and be it further
RESOLVED, that the chairman of the ad hoc Committee report at least quarterly to the Arizona Medical Association Board of Directors, the committee findings and recommedations.

It was regularly moved and carried that this resolution be adopted.

18. Government Public Health Agency Extension into the Private Practice of Medicine
WHEREAS, the Arizona State and County governments through their Public Health Departments have shown increasing tendencies to expand their activities into areas such as screening and diagnosis of diabetes mellitus, screening and diagnosis of cancer and laboratory diagnosis of non-infectious diseases; and
WHEREAS, the governmental Public Health activities as defined by Law have been traditionally and properly in the the areas of Vital Statistics Environmental Sanitation, Control of Communicable Diseases, Protection of Health of Children and Mothers, Provision of Public Health Laboratory Services and Health Education; and
WHEREAS, Government Public Health authorities are now construing Mental Health and Chronic Diseases, e.g., Cancer, Arteriosclerosis, Hypertension, Arthritis, etc., to be in the domain of Public Health; and
WHEREAS, community health is not synonymous with individual health nor is public health synonymous with private health; and
WHEREAS, the Arizona Revised Statutes sec: 32-1402 Medical Practice Act states "a person shall be regarded as practicing medicine and surgery or either if he by any indication or statement claims his ability or willingness to or does diagnosticate or prognosticate any human ills . . ."; and
WHEREAS, the practice of Laboratory Medicine, otherwise known as Pathology, is defined as the practice of medicine by statutes of medical practice acts of various states and by resolutions of various professional societies or organized medicine such as the American Medical Association and College of American Pathologists; and
WHEREAS, the activities of the Public Health departments encroach upon various fields of medical practice not encompassed specifically by law; and
WHEREAS, there are sufficient competent and immediately available facilities and personnal, private and public, to care for all who wish to utilize services in the areas of Chronic Diseases and Laboratory Medicine on a private fee basis or for no fee if the patient cannot afford to pay; therefore be it
RESOLVED, that the Arizona Medical Association is opposed to increasing extension into the private practice of medicine by Government Public Health Agencies where not specifically directed by law; and further be it
RESOLVED, that impersonal techniques of predominatly non-physician personnel will potentially endanger and/or compromise the complete and best care for the patient; and further be it
RESOLVED, that the need for these services by government Public Health Agencies is not evident and that they will be an unwarranted and expensive burden upon the taxpayer of the State of Arizona, and further be it
RESOLVED, that the Public Health authorities continue directing their funds and personnel to the proper and traditional activities specified by law to attain the maximum goals which, in spite of their excellent work, are far short of completion.

The Reference Committee on Resolutions suggested that the Arizona Society of Pathologists should discuss

matters of concern relating to public health agencies with the Association's Public Health Committee who will in time, we feel sure, bring to the attention of this House some of the subjects of discussion in this resolution with appropriate recommendations for action. This recommendation now set before your Reference Committee has the approval of Doctor Daniels who introduced the resolution.

There was no action taken on this resolution.

This portion of the Committee's report was adopted.

19. Recognition of Services of Doctor Jesse D. Hamer

WHEREAS, Jesse D. Hamer, M.D. has served with distinction as Trustee and Vice-President of the American Medical Association, and has represented the State of Arizona as Delegate to the American Medical Association for the past 29 years with wisdom, diligence and zeal; and

WHEREAS, he has represented each and every member of the Arizona Medical Association throughout this long period; therefore be it

RESOLVED, that suitable recognition be given him in the form of a plaque memorializing his many achievements and leadership in the field of state and national legislation, and that the American Medical Association be provided with a copy so that they may take appropriate action to memorialize his achievements on a national level.

This resolution was adopted by acclamation.

20. Annual Scientific Program

WHEREAS, attendance at the Annual Meeting of the Arizona State Medical Association Business and Scientific Sessions is hoped to be kept at a maximum,

WHEREAS, the major field of medical practice, whether specialty or general in nature, are Internal Medicine, Surgery, Obstetrics and Gynecology, Pediatrics,

THEREFORE BE IT RESOLVED that every Scientific Session of the Arizona Medical Association Annual Meeting shall include at least one speaker from each of these major fields.

The House of Delegates referred this resolution to the Board of Directors for its consideration and for their pleasure.

THE REPORT OF THE REFERENCE COMMITTEE AS A WHOLE, AS DELETED AND AMENDED, WAS ADOPTED.

ELECTION OF DISTRICT DIRECTORS

The following District Directors were elected:

Central District.....Ashton B. Taylor, M.D. (1963-66)
Central District Paul B. Jerrett, M.D. (1963-66)
Northeastern
District Arnold H. Dysterheft, M.D. (1963-66)
Southern District....Philip G. Derickson, M.D. (1963-64)

MEETING ADJOURNED AT 4:42 P.M. SINE DIE.

Charles E. Henderson, M.D.
Secretary

DUES AND DELINQUENCIES

Many of the members of The Arizona Medical Association, Inc. have received, early in June of this year, a letter from the American Medical Association relative to their membership status and the payment of membership dues. This letter included an envelope addressed to your State Medical Association and a card form, referable to the payment of AMA dues.

Our best and closest estimate of the response received in the central office to date would indicate that 99% or more of these members had paid county, state and national dues and were current and in good standing and we will attempt a brief explanation here for the purpose of clarification of your receipt of the letter aforementioned.

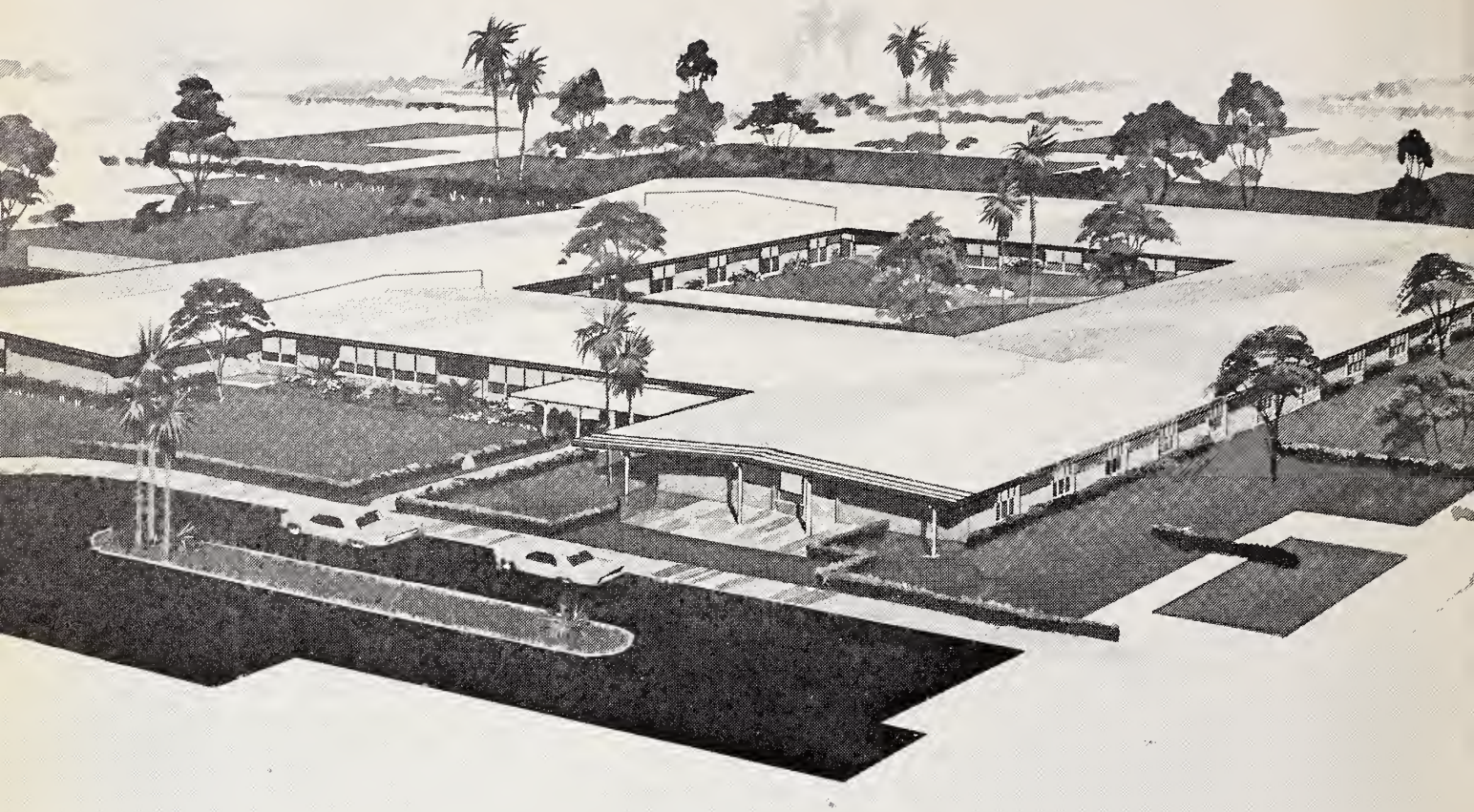
While the dues of the Arizona and American Medical Association's are due and payable on January 1 of each year (and may be paid prior to that time for tax purposes) many of the members forward their dues to their County Medical Society in late March or early April each year, the delinquency date being April 1 annually and the following is an actual account of what can and does in many cases, happen.

The processing of dues in County Societies may require five to fifteen days or longer and for good business administrative reasons authorized by the Central Office Advisory Committee and the Board of Directors of The Arizona Medical Association, Inc. and at the suggestion of the American Medical Association, the dues received in the State office are processed once monthly. The dues received by the American Medical Association may be in process as much as one month, in that they are receiving these dues from all of the United States and its possessions, numbering many thousands. Therefore, dues forwarded by your County Society Secretary, if implemented in normal fashion, may not be processed by the American Medical Association until after June 1 of the same year and using a punch card system the letter, envelope and card referred to in paragraph one, are processed on June 1 annually.

Last but not of least import, AMA's letter of June 1 is not a delinquency notice but a notice to the member that he is faced with a delinquency in the event he has failed to pay his dues on receipt of that communication.

Finally, I would make a strong plea to each member of this Association that their dues be paid to their County Society Secretary and forwarded to the central office of the Association not later than March 1 annually, to avoid any misunderstandings and that each of you recommend in your County Society meeting, that your Secretary forward dues to the State Association on receipt of the same.

Arthur V. Dudley, Jr., M.D.
Treasurer



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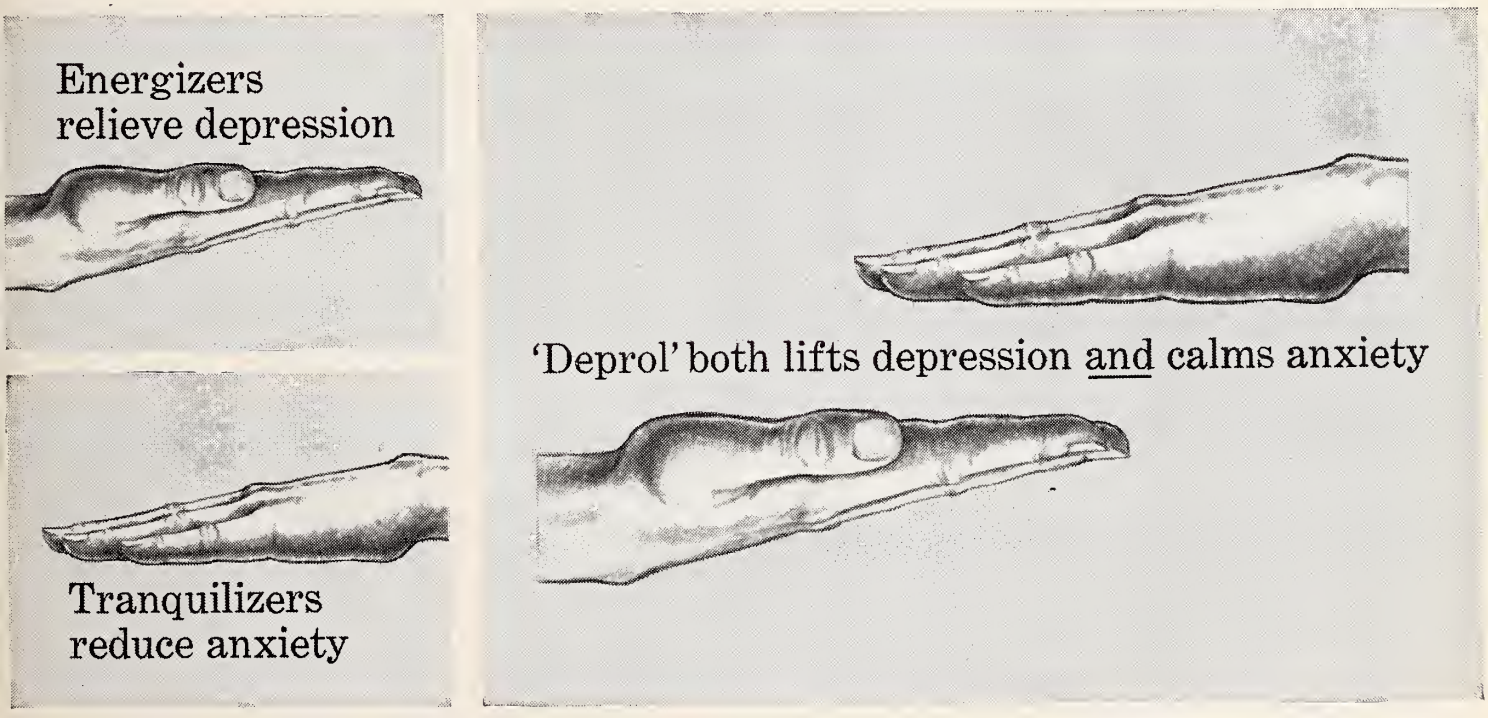
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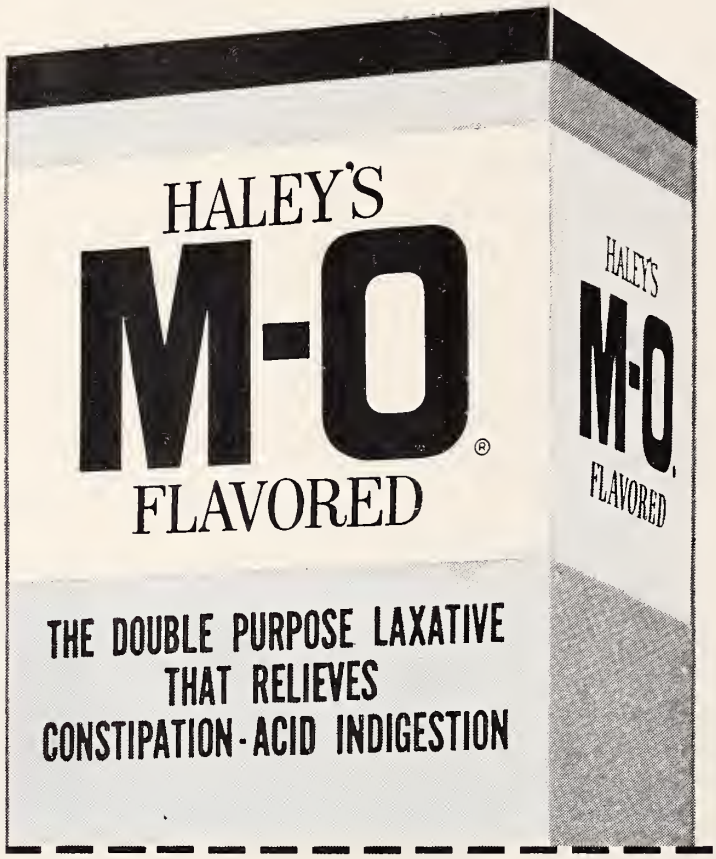
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Serum Enzymes in Clinical Medicine

by

Hyman J. Zimmerman, M.D.

and

Michael West, M.D.

A newly re-explored and increasingly complicated field of biochemistry is here presented in its application to clinical medicine. The authors, widely recognized as authoritative investigators, have reduced the material to a first rate, up to date teaching text for clinicians. The abundant figures add to the reader's ease of comprehension. The extensive bibliography offers a challenge to the student whose interests may be specialized.

ENZYMES, organic catalysts responsible for the chemical reactions of the body, are found in all tissues. Clinicians have long used the knowledge of enzymes of the gastrointestinal juices in the study of gastric and pancreatic disease (1,2). Analysis of levels of serum enzymes including alkaline and acid phosphatases, amylase and lipase also has been useful in clinical medicine for more than 30 years. Interest in clinical enzymology was stimulated by the observation during the past decade that the glutamic-oxaloacetic transaminase levels of the serum are elevated in patients with myocardial infarction (3,4) and hepatic disease (5,6). To date more than 30 additional enzymes have been demonstrated in human serum. Assay of a number of these has been applied to routine clinical use. The clinical utility of several of the more intensively studied serum enzymes and the concept of the usefulness of panels of serum enzyme determinations will be discussed below.

From the Departments of Medicine, The Chicago Medical School, The Mount Sinai Hospital and the Mount Sinai Medical Research Foundation.

Presented at the Veterans Administration Hospital, Tucson, Arizona on May 3, 1962.

Amylase

The clinical value of this laboratory measure of pancreatic disease is well established. Almost all patients with acute pancreatitis have transiently (1-3 days) elevated serum amylase levels. It has been emphasized that persistence of increased levels beyond 3 or 4 days is suggestive evidence that a pancreatic pseudocyst has developed (7). Nonpancreatic causes of amylase elevation include acute cholecystitis (8) [even without demonstrable complicating pancreatitis], intestinal obstruction (9), perforated (10) and penetrating (11) peptic ulcer and renal insufficiency (12). Epidemic parotitis is characterized by a 90% incidence of elevated serum amylase levels, apparently resulting from release of enzyme from the parotid glands, pancreas, or amylase-producing intestinal glands (13). It is of interest, in this connection, that patients with mumps meningoencephalitis frequently have elevated serum amylase levels, even when there is no clinical evidence of salivary gland or pancreatic involvement (14). Lower than normal serum amylase values may be seen in patients with exocrine pancreatic insufficiency, in patients with chronic hepatic disease (15) and newborns.

The use of the serum lipase has not achieved the same popularity as that of amylase. This is due in part to the greater difficulty in determining and evaluating serum levels and partly to the fact that elevations in pancreatic diseases are not as dramatic as those for amylase (16). Nevertheless, elevated lipase levels are approximately as frequent as those of amylase in patients with acute pancreatitis and the lipase level tends to subside more slowly than the amylase during the period of recovery. The serum lipase level has been reported to be elevated more frequently than that of the serum amylase in patients with chronic pancreatitis and carcinoma of the pancreas.

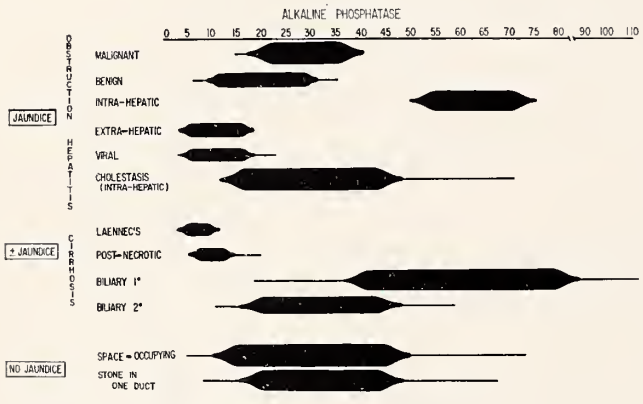


Figure 1.

Diagrammatic representation of serum levels (Bodansky units) of alkaline phosphatase in hepatobiliary diseases. In the obstructive jaundice group (first four diseases), "intra-hepatic" and "extra-hepatic" refer to the two types of biliary atresia. In the "no jaundice" group, space-occupying refers to granulomatous, neoplastic or other infiltrative lesions.

Phosphatases

The clinical value of determining serum alkaline and acid phosphatase activity is well-established. Elevations of the alkaline phosphatase level are seen in patients with the bone diseases characterized by increased osteoblastic activity. These include osteitis deformans, rickets, osteomalacia, hyperparathyroidism, healing fractures and osteoblastic bone tumors, both primary and secondary. Growing children and pregnant women in the third trimester have "physiologically" elevated serum alkaline phosphatase levels.

The range of serum alkaline phosphatase values observed in patients with hepatic and biliary tract disease is depicted in Figure 1. The occurrence of elevated levels in patients with obstructive jaundice has been recognized since 1930 (17). When the obstruction is complete and prolonged, values of 15 to 35 Bodansky units are usual. Lower levels may be observed in patients whose obstructive jaundice is of short duration or incomplete (18). Values below 10 Bodansky units may occur with incomplete obstruction, e.g., in association with choledocholithiasis and common duct tumors (19). Occlusion of one hepatic duct in dogs has been shown to result in increased serum alkaline phosphatase levels without significant increase in serum bilirubin values (20). Similarly, humans with stones in one hepatic duct may have high serum alkaline phosphatase, but normal bilirubin levels.

In patients with hepatocellular jaundice the alkaline phosphatase levels are usually below 15 B.U. Approximately five per cent of patients with viral hepatitis studied in our laboratory have values above this level (21). In otherwise characteristic viral hepatitis it is extremely unusual to have alkaline phosphatase levels above 25 units. "Cholangiolitic" types of hepatitis, whether idiopathic or due to drug toxicity, are frequently associated with alkaline phosphatase levels in the range considered characteristic of obstructive jaundice (22,23).

Patients with Laennec's cirrhosis usually have normal or only slightly elevated (4-8 Bodansky units) serum alkaline phosphatase levels. There is little relationship to the presence of jaundice, coma, or to the prognosis (24,25). In post-necrotic cirrhosis values as high as 15 Bodansky units are not uncommon and even higher levels are occasionally observed. In patients with obstructive biliary cirrhosis values between 10 and 25 Bodansky units are usual. Higher values are observed during exacerbation of jaundice. Primary biliary cirrhosis is characterized by levels of 25 to 75 Bodansky units (26).

There are several hepatic diseases characterized by increased alkaline phosphatase levels, even in the absence of jaundice. This has been emphasized as the pattern for "space-occupying" lesions such as granuloma, metastatic carcinoma, amyloidosis and abscess (27).

Abnormally low or even absent alkaline phosphatase activity may be found in the serum of patients with hypophosphatasia, an inborn error of metabolism, (28) and in malnourished patients (29).

Acid phosphatase, first demonstrated in the urine in 1925, (30) was found to be much richer

in male than in female urine. This led to the demonstration that prostatic tissue contained this enzyme in high concentration. There are other sources of acid phosphatase, including the erythrocyte. Elevated serum levels of this enzyme, however, are seen almost exclusively in prostatic carcinoma (16,31). Approximately one-half of the patients with prostatic carcinoma which has extended beyond the capsule have elevated acid phosphatase levels, while patients with prostatic cancer still within the capsule usually have normal acid phosphatase values (32). It is of interest, however, that even patients without carcinoma have been reported to have transient serum acid phosphatase elevations after prostatic massage (16,31,33). The serum acid phosphatase values represent the sum of enzymes from prostatic and from other tissue such as the erythrocytes. To detect increased serum levels of "prostatic" acid phosphatase even when the total acid phosphatase is normal or only slightly increased, several techniques have been introduced (34,35). Lemon (36) has stated that the use of copper ion (35) to inhibit erythrocytic acid phosphatase is more specific for serum prostatic acid phosphatase determination than the l-tartrate inhibition recommended by Fishman (34). The portion of serum acid phosphatase inhibited by l-tartrate has been called the prostatic acid phosphatase.

The foregoing analysis of serum acid phosphatase levels is based on data obtained with the Bodansky method of acid phosphatase assay, with a-glycerophosphate as the substrate. When phenyl phosphate is used as substrate (37) elevated serum acid phosphatase levels are observed regularly in patients with Gaucher's disease (38). This appears to be so consistent a feature as to be useful in the recognition of this condition.

Cholinesterase

The cholinesterase of the serum has been called pseudocholinesterase to distinguish it from the true cholinesterase of the erythrocytes and nerve tissue (16,39). The erythrocyte enzyme acts quite specifically on actetylcholine, while the serum enzyme hydrolyzes acetylcholine and other choline esters almost equally well.

Serum cholinesterase has been found to be depressed in patients with intrinsic hepatic disease, i.e., hepatitis and cirrhosis (40,41,42). Determination of this enzyme has been recommended to assist in the differential diagnosis of jaundice, as well as to measure hepatic function in patients with parenchymal hepatic disease. Low serum values of this enzyme may be found, however, in patients with obstructive jaundice (43, 44) and in patients without hepatic disease, including pernicious anemia, (16,39,41) malnutrition, (39,41) myocardial infarction, (45) dermatomyositis, (45) and in diseases associated with hypoalbumininemia (41). An exception to the association between hypoalbuminemia and depressed serum cholinesterase levels prevails in patients with nephrotic syndrome, where high serum levels of the enzyme occur. It has been suggested (41) that the serum cholinesterase level is an index of the rate of hepatic albumin synthesis. Determination of this serum enzyme has not been applied widely in the diagnosis and management of hepatobiliary disease, perhaps because of the non-specifity of abnormal results.

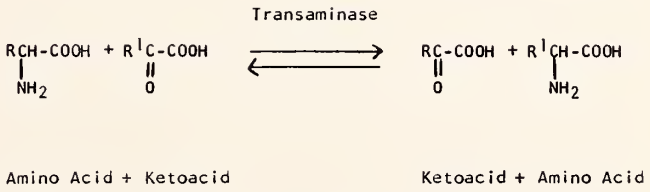


Figure 2.
Prototype of transamination reactions.

Transaminases

Transaminases catalyze the transfer of an amino group from an amino to a keto acid (Figure 2). Two transaminases have been studied in the serum. These are glutamic-oxaloacetic transaminase (GOT) and glutamic pyruvic transaminase (GPT). Glutamic-oxaloacetic transaminase catalyzes the reversible transfer of an amino acid group from glumatic to oxaloacetic acid (Figure 3). In man, the highest enzyme

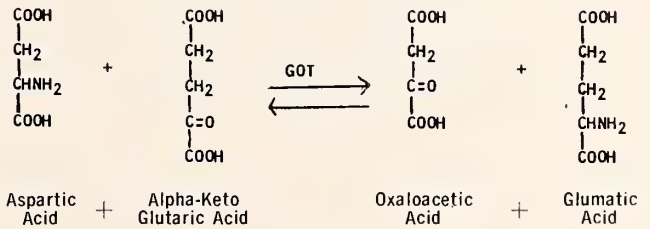


Figure 3.
Reaction catalyzed by glumatic oxalacetic transaminase (GOT).

content is found in cardiac and skeletal muscle, brain, hepatic, renal, pancreatic, lung and splenic tissue, in that order. Necrosis or damage to these tissues might be expected to produce elevated serum levels of this enzyme. The high myocardial content of this enzyme led Karmen, Wroblewski and LaDue (3) to search for increased serum levels in patients with myocardial infarction. Extensive studies reveal that 92 to 98% of patients with acute myocardial infarction have elevated levels of this enzyme, which are usually 4 to 10 times the upper limit of normal (46,47,48). These develop 6 to 12 hours after the time of infarction, usually returning to normal by the fourth or fifth day (Figure 4). Secondary rises can be correlated with other features suggesting extension or recurrence of myocardial infarction. Experimental work with animals (49) and some observations (46) in patients have suggested that the degree of rise is related to the extent of myocardial necrosis. Attempts to relate prognosis to the serum enzyme levels have revealed differences between fatal and non-fatal cases for the first, second and third post-infarction day (47).

Patients who develop shock following myocardial infarction, irrespective of prognosis, have serum GOT levels in the range of those observed in patients with acute hepatic necrosis (47).

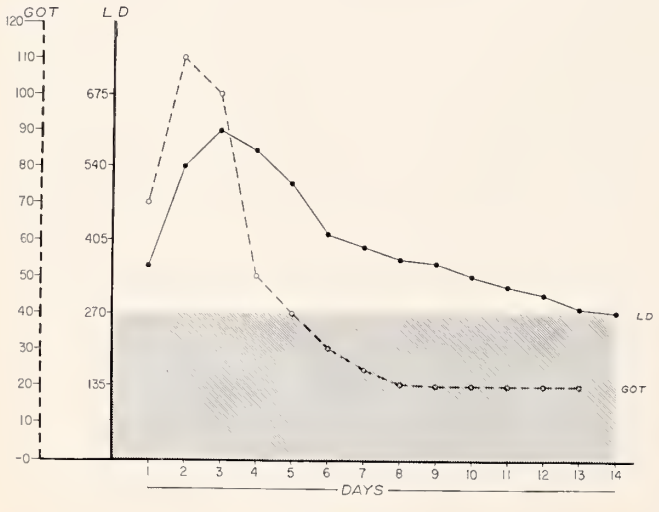


Figure 4.

Mean serum levels of lactic dehydrogenase (LD) and glumatic oxalacetic transaminase (GOT) by days in patients after myocardial infarction. The stippled area represents the normal range for the enzymes (Upper limit of normal for LD is 270 micromols of DPN reduced per 100 ml. of serum and for GOT is 40 Karmen units).

The proper utilization of the serum GOT in the diagnosis of myocardial infarction depends on an awareness of other cardiovascular and non-cardiac diseases which may also elevate the serum enzyme level (Figure 5). Slight elevations

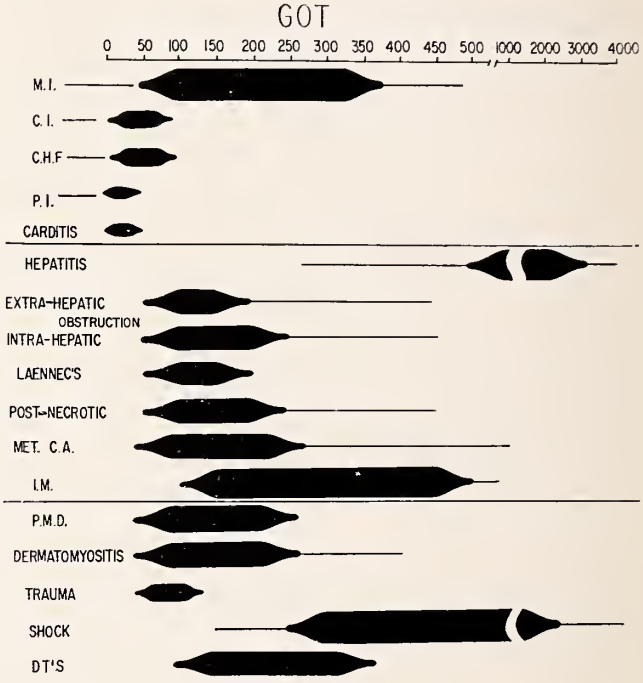


Figure 5.

Diagrammatic representation of GOT levels (Karmen units) in patients with cardiac disease (Top panel), hepatobiliary disease (Middle panel) and miscellaneous conditions (Lower panel). The abbreviations represent the following diseases: M.I., myocardial infarction; C.I., coronary insufficiency; C.H.F., congestive heart failure; P.I., pulmonary infarction; Met. CA., metastatic carcinoma; I.M., infectious mononucleosis; P.M.D., progressive muscle dystrophy; DT's, delirium tremens. Intrahepatic obstruction refers to "cholangiolitic hepatitis" caused by drugs while Laennec's and Post-necrotic refers to varieties of cirrhosis.

may occur in approximately five per cent of patients who would otherwise be diagnosed as "coronary insufficiency". This has been interpreted as evidence that these patients have areas of myocardial necrosis.

In patients with congestive heart failure (50) and those with marked tachycardia (ventricular rate over 160 per min.) mild to moderate GOT elevations may occur (51). These elevations have been attributed to the hepatic necrosis secondary to hepatic congestion. Patients with pericarditis also have been reported to have elevated GOT levels (52). Patients with rheumatic fever may have increased serum enzyme levels resulting from myocardial changes, the hepatic

necrosis of congestive heart failure or even, it has been suggested, as a manifestation of salicylate hepatotoxic effeet (53,54,55). Cardiac catheterization and mitral commissurotomy have been reported to be followed within 12 hours by slight GOT elevations (56). Greater increases oceur in patients who have had reseetion of a ventricular aneurysm or elosure of a ventricular septal defeet (56).

Mild elevation of the serum GOT has been reported in some patients with pulmonary infarction (57,58). Studies of the effects of experimental pulmonary infarction on serum GOT levels have yielded inconclusive results. Agress and his assoeiates (59) have reported no significant rise for as long as 40 hours after the infaretion in a study of experimental pulmonary infarction in dogs, while Rudolph and his co-workers (60) reported a rise within 24 hours in all their dogs. In a relatively small group (18) of patients with uncomplicated pulmonary infaretion, GOT values were found to be normal (47). Patients with both heart failure and pulmonary infarction have a 30% incidence of elevated GOT values, while those with only heart failure have a 12% incidence of abnormal GOT levels.

Glutamic-oxaloacetic transaminase determination, is of eourse not necessary for the diagnosis of myocardial infarction in most patients with classical elinical and eleetrocardiographie evidence of this condition. It is of value in patients whose eleetrocardiograph changes are ineonelusive. These include patients with left bundle braneh block, Wolfe-Parkinson-White syndrome and those with electrocardiographie ehanges persisting after a previous infaretion. Determination of this serum enzyme is also of value in recognizing "extension" of an infarction. Normal values, serially obtained during the first five days after a presumed myocardial infarction are useful in excluding the diagnosis.

THE usual range of abnormality observed in various diseases is depicted in Figure 5. The highest levels of GOT are observed in patients with acute hepatic necrosis and in some patients with shock. Patients with eardiac disease (without shock) and all forms of chronic liver disease have mueh lower values (under 400 units).

The hepatie necrosis of viral hepatitis is associated with levels ranging from 300 to 4000 units (61,62). All reported patients with acute viral hepatitis have had elevated serum levels of GOT. Two to six weeks, or even longer, may elapse before the serum levels are once more normal. Persistent elevation appears to represent continued aetive hepatitis and a secondary rise apparently represents a relapse (62). Patients with carbon tetrachloride poisoning may have strikingly but transiently elevated GOT levels (63). Infectious mononucleosis is associated with lesser elevations of the GOT level. Sueh elevations have been observed in approximately 80% of the patients with this condition (64).

MILD elevations of the serum GOT level are observed in patients with eirrhosis, obstructive jaundice and metastatic careinoma. Approximately 60% of patients with "aleoholic" cirrhosis have elevated levels of GOT. The degree of elevation is slight or moderate with levels that rarely exeeed 300 units, and appears to have little relationship to the degree of hyperbilirubinemia. In several cirrhotic patients with much higher values (700-1000 units) the clinieal circumstances suggested the presence of a complieating serum hepatitis. Mildly elevated GOT levels (less than 300 units) are found in approximately 75% of patients with obstructive jaundice and intrahepatic cholestasis (51). Similar values of GOT occur in approximately 50% of patients with metastatic carcinoma of the liver (65). Normal levels are usual in patients with few hepatic metastases. We also have observed normal serum GOT levels in a few patients with extensive carcinomatous involvement (65). Too few patients with primary carcinoma of the liver have been studied for accurate analysis of the ineidence of elevations and magnitude of the levels.

Determination of GOT levels may be of value in the diagnosis and management of hepatie disease. Early recognition of acute hepatitis and appraisal of normal convalescence or relapse is facilitated by this procedure. Transaminase determination is useful as a measure of hepatie damage in patients reeeiving or exposed to potentially hepatotoxic agents. It may be of help in recognizing hepatic involvement in infectious mononucleosis or congestive heart failure. The procedure is a useful adjunct in the differential diagnosis of jaundice. Values above 500 units in a jaundiced patient strongly suggest presence of acute hepatic necrosis, sinee obstructive jaundice and cirrhosis usually are associated with much lower levels of this serum enzyme. The presence of hepatic metastases should be sus-

pected in patients with carcinoma whose GOT levels are elevated.

Patients with disease or injury producing inflammation or destruction of skeletal muscle also may have elevated GOT levels. Serum GOT has been reported to be elevated in patients with progressive muscular dystrophy, (66) and dermatomyositis (67). In patients with amyotrophic lateral sclerosis, progressive muscular atrophy, myasthenia gravis and nerve section, however, GOT levels are usually normal (68). Serum levels of this enzyme are elevated to a slight degree in some patients with gangrene of the extremities, surgical or other trauma (61). The values have been reported to be normal or slightly elevated in patients with cerebrovascular accidents (69).

In two-thirds of the patients with acute pancreatitis, elevated serum GOT levels are observed. Foulk and Fleisher (70) have reported elevations in 22 of 32 patients with acute pancreatitis. Two to 30-fold increases were noted, with no apparent relationship between the degree of increase in GOT and the degree of pancreatic necrosis. The most pronounced enzyme elevations were found in patients with hyperbilirubinemia. These authors (70) suggested that associated obstruction of the biliary tract played a dominant role in the GOT elevations. It is our opinion that assoeiated delirium tremens and/or cirrhosis in alcoholic patients with pancreatitis also may contribute to the GOT elevations.

Glutamic Pyruvic Transaminase

This enzyme, which catalyzes the reversible transfer of an amino group from glutamic to pyruvic acid (Figure 6) also is widely distributed in animal tissues. The relatively low myocardial but high hepatic content (Figure 7) led to the suggestion by DeRitis and his associates (71) and by Wroblewski and his co-workers (72) that determination of the levels of GPT might aid in distinguishing GOT elevations due to hepatic disease from those due to myocardial necrosis. DeRitis has reported that patients with acute hepatitis have GPT elevations which are almost always more marked than the GOT elevations (71). Studies in this laboratory also have shown that GPT levels are often higher than GOT levels in hepatitis (Figure 8). In approximately one-third of our patients with hepatitis, however, the reverse is true.

In patients with cirrhosis, obstructive jaun-

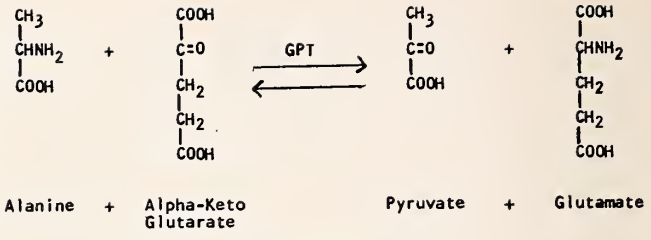


Figure 6.
Reaction catalyzed by glutamic pyruvic transaminase (GPT).

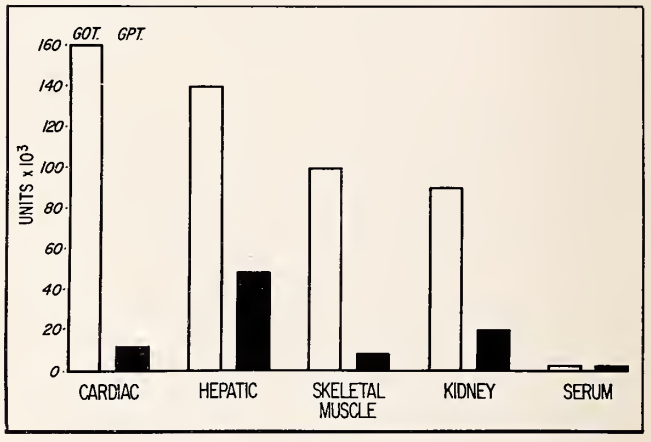


Figure 7.
Relative concentrations of GOT (open bar) and GPT (closed bar) in Karmen units per gram of cardiac, hepatic, skeletal muscle and kidney tissue and per ml. of serum.

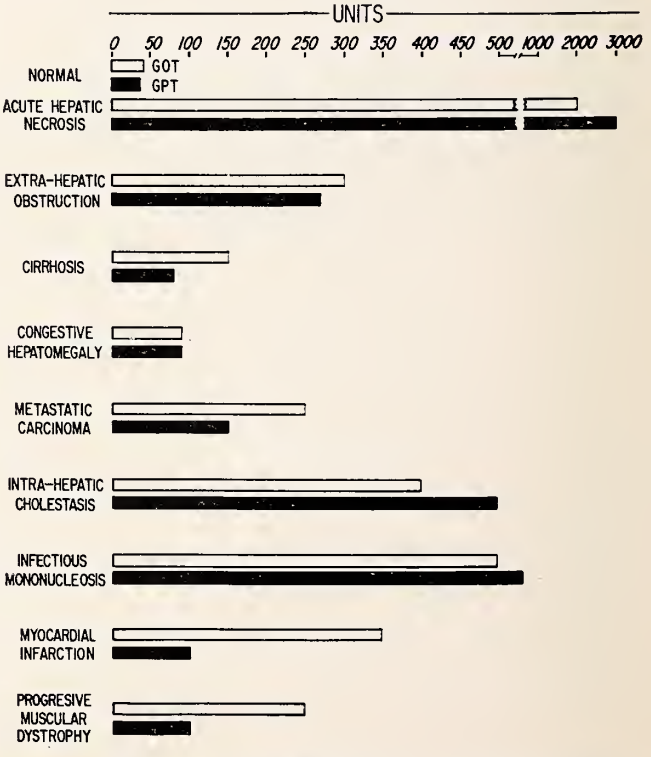


Figure 8.
Relative values of GOT and GPT (in Karmen units) in various diseases. Intra-hepatic cholestasis refers to cholangiolitic hepatitis.

dice and metastatic carcinoma, serum GPT levels are less elevated than those of GOT (71). In this laboratory, the discrepancy between the values of the two transaminases is more marked in patients with cirrhosis and metastatic carcinoma to the liver than in those with obstructive jaundice (Figure 8). Ninety per cent or more of patients with infectious mononucleosis have mildly to moderately elevated levels of the serum levels of the GPT (64,73). In most instances, the values are slightly higher than the corresponding GOT values.

In patients with myocardial infarction, on the other hand, GPT levels are usually normal or only slightly elevated. Higher values occur when there is congestive heart failure or shock, with presumed hepatic necrosis (75).

Lactic Dehydrogenase

Lactic dehydrogenase (LD) is an enzyme which catalyzes the reversible oxidation of lactic to pyruvic acid (Figure 9). Elevated serum levels are observed in patients with myocardial infarction, (47,76,77) carcinomatosis, (65) megaloblastic anemia, (78) granulocytic and acute leukemia, (79) sickle cell anemia, (78) and in growing children (80). Slightly to moderately elevated values are observed in hepatitis, cirrhosis, and obstructive jaundice (81). (Figure 10).

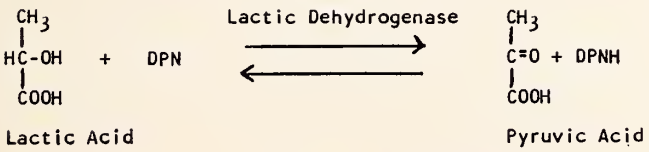


Figure 9.
Reaction catalyzed by lactic dehydrogenase (LD).

The pattern of serum LD elevation in myocardial infarction is quite characteristic and occurs in most patients (82). The degree of elevation of LD is not as striking as is that of the GOT. The LD level, however, is elevated as frequently as is the GOT and remains elevated for a longer period of time (7-14 days), (47,83), Figure 4). Wacker and Vallee (83) have emphasized the value of LD determination in the diagnosis of myocardial infarction. In the opinon of the authors, determination of the LD level during the first few days adds less to the use of the GOT in diagnosing myocardial infarction than it

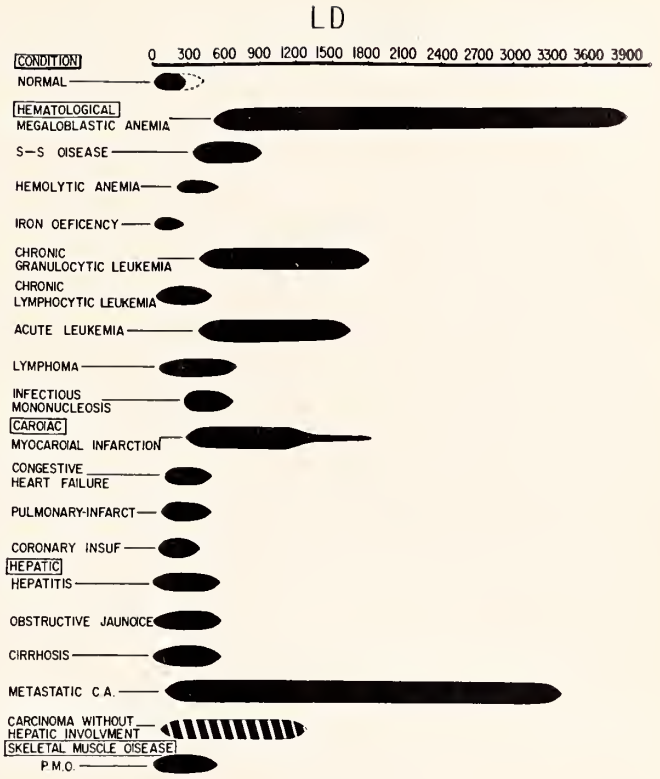


Figure 10.
Diagrammatic representation of LD values (micromols of DPNH per 100 ml. of serum) in normals (dotted lines represent values in normal children) and in various diseases. S-S disease refers to homozygous sickle-cell anemia, P.M.D. to progressive muscular dystrophy.

does during the second week. The characteristically prolonged period of LD abnormality may be of some assistance in the diagnosis. Moderately elevated LD levels occur in patients with pulmonary infarction.

Studies in this laboratory (65) have revealed that patients with localized carcinoma usually have normal LD levels while those with distant metastases or even local extension have increased levels. The highest values occur in patients with metastases to the liver although increased levels also are found in some patients with only extrahepatic metastases or local extension. Analysis of these results (84,85,86) and experimental animal studies (87) suggested that the serum LD elevations associated with carcinomatosis might reflect the total mass of tumor more than the tissue invaded.

Abnormal LD values occur in several hematologic syndromes (Figure 10). All patients with megaloblastic anemia whom we have studied (78) have had elevated LD values, which have returned to normal as the anemia has responded to treatment. There is a striking difference be-

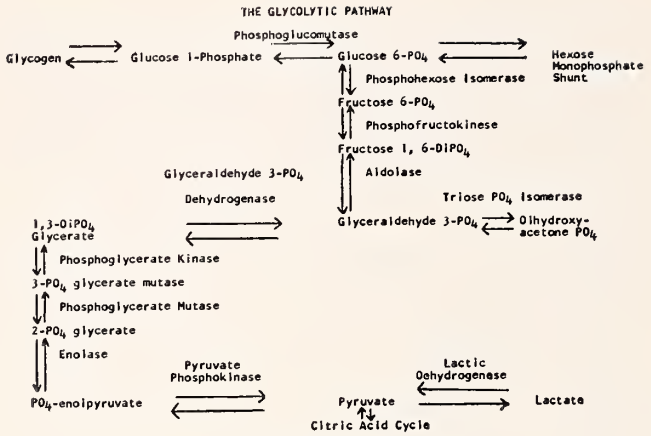


Figure 11.

Schematic representation of the glycolytic pathway.

TABLE I

Relative Value of Glycolytic Enzymes in Various Diseases

	LD	ALD	PHI
Cardiac	+++	++	++
Neoplastic	++	++	+++
Hematologic	+++	++	++
Hepatic	±	++	++
Muscle	++	++++	++

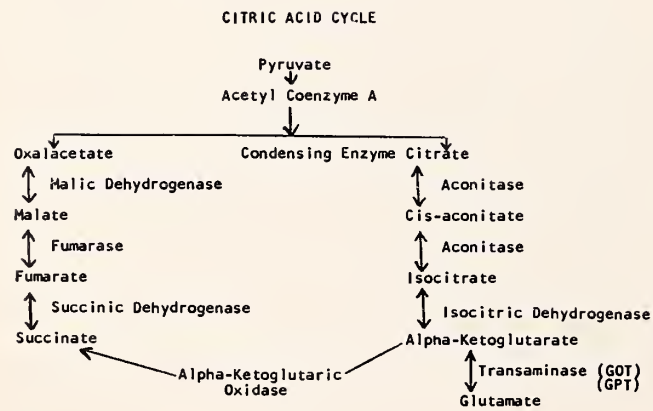


Figure 12.

Schematic representation of the Citric Acid Cycle.

tween the LD values of the serum in granulocytic and chronic lymphocytic leukemia (79). In granulocytic and in acute leukemia the LD values are moderately to markedly elevated while in lymphocytic leukemia the levels are usually normal. Patients with infectious mononucleosis characteristically have moderated increased LD values (73).

Serum LD levels are abnormal in several conditions in which the GOT levels are usually normal, e.g. megaloblastic anemia, leukemia, sickle cell anemia, renal disease and growth. The determination of serum LD is less useful than that of the transaminases in detecting hepatic disease (74).

Aldolase & Phosphohexose Isomerase

The two enzymes, aldolase (ALD) and phosphohexose isomerase (PHI), like LD, are part of the glycolytic pathway of carbohydrate metabolism (Figure 11). They are also found in the serum of normal individuals and patients with various diseases (88,89,90,91,92). A comparison of the magnitude of elevation of their levels with those of LD in diseases of several categories is diagrammatically summarized in Table 1.

Malic Dehydrogenase & Isocitric Dehydrogenase

Oxidation beyond pyruvate, the end product of glycolysis, is accomplished by the tricarboxylic acid cycle, depicted in Figure 12. Malic dehydrogenase and isocitric dehydrogenase, enzymes associated with this pathway, also have been studied in the serum of patients with various diseases (90,93,94).

Malic dehydrogenase catalyzes the reversible oxidation of malate to oxaloacetate. Elevations have been observed in patients with myocardial infarction, hepatic necrosis, hemolytic syndromes, megaloblastic anemia, and neoplastic disease. In general the abnormalities appear to parallel those observed with the three glycolytic enzymes discussed above.

Isocitric dehydrogenase catalyzes the conversion of isocitrate to alpha-ketoglutarate. The serum levels of this enzyme have been reported to be increased up to 40-fold in patients with viral hepatitis (94). Values are moderately elevated in patients with cirrhosis and obstructive jaundice and metastatic carcinoma of the liver. Carcinoma, even without metastatic involvement, megaloblastic anemia and congestive heart failure

also are associated with mildly elevated levels of this enzyme. Abnormal levels have not been reported in patients with myocardial infarction (47).

Peptidases

A number of peptidases have been identified in the serum of patients with various diseases. Leucine amino-peptidase (LAP) has been studied more extensively than the other peptidases (95,96,97,98,99). Elevated levels of this serum enzyme have been reported in most hepatobiliary diseases. These include hepatitis, cirrhosis, obstructive jaundice and metastatic carcinoma of the liver and pancreatitis. Patients with carcinoma of the pancreas have increased levels only if obstructive jaundice or metastases to the liver have developed. Interesting and unexplained is the occurrence of elevated values during the last trimester of pregnancy.

Ornithine Carbamyl Transferase

This enzyme which catalyzes the reversible conversion of ornithine to citrulline, is intimately involved in urea synthesis. The concentration of this enzyme is very high in the liver, but negligible in other tissues except intestinal mucosa (100,101,102,103). Serum levels are markedly elevated (10 to 200 fold), in acute viral hepatitis and carbon tetrachloride poisoning. Lesser degrees of elevation occur in patients with cholecystitis, metastatic carcinoma, heart failure, shock and delirium tremens.

Comments

A number of other enzymes have been identified in human serum and their levels studied in various diseases (104,105,106,107,108,109,110, 111,112,113,114,115,116,117). There are several theoretical mechanisms by which serum enzyme levels might be increased (Table 11.) Tissues which have normal enzyme content may release several of the enzymes upon undergoing necrosis or an alteration of cell wall permeability. Thus, in pancreatitis the well-known amylase and lipase elevations occur as well as the more recently studied serum trypsin, (104) leucine amino-peptidase and deoxyribonuclease elevations (117). Similarly, in hepatitis and in myocardial infarction, a number of enzymes found in the liver and myocardium, respeetively, appear to be released into the blood.

An increase in the amount of a tissue which can serve as a source of serum enzymes may also contribute to increase levels. Examples of this include the increased serum alkaline phosphatase levels in patients with osteoblastic lesions and the increased serum levels of glycolytic acid (ALD, PHI, LD) and some oxidative enzymes (MD, ICD, GR) in patients with neoplasms. We have suggested that a similar mechanism may explain the elevated serum levels of glycolytic and some oxidative enzymes in patients with pernicious anemia (78). Impaired excretion may contribute to enzyme elevation as exemplified by the increased serum amylase levels in uremia. Among other factors that may modify the demonstrable serum enzyme activity should be included release from tissues of enzyme inhibitors or co-factors.

TABLE II

Causes of Abnormal Serum Enzyme Levels

A. Elevated Values
 1. Increased Release
 e.g. hepatitis
 myocardial infarction
 2. Increased Production ± Increased Release
 e.g. osteoblastic bone lesions
 carcinoma
 (?) megaloblastic anemia
 3. Decreased Excretion
 e.g. obstructive jaundice

B. Depressed Values
 1. Decreased Production
 e.g. hypophosphatasia (inborn error)
 low amylase in chronic pancreatitis
 low cholinesterase in hepatic disease

Determining the activity of several enzymes in a serum sample enhances the value of serum enzyme studies. Illustrative patterns of enzyme levels in various diseases are shown in Figures 13-17. The pattern of viral hepatitis differs distinctly from that of cirrhosis, obstructive jaundice and metastatic carcinoma (Figure 13), but resembles that associated with shock (Figure 14). In Figure 15 which contains the patterns of leukemia and lymphomatous disease, the distinct difference between the patterns of granulocytic and lymphocytic leukemia is illustrated. Similarly megaloblastic anemia is characterized by a pattern of enzyme abnormality distinctive from that of other types of anemia (Figure 16). The well-known serum enzyme abnormalities of myocardial infarction yield a characteristic pattern (Figure 17).

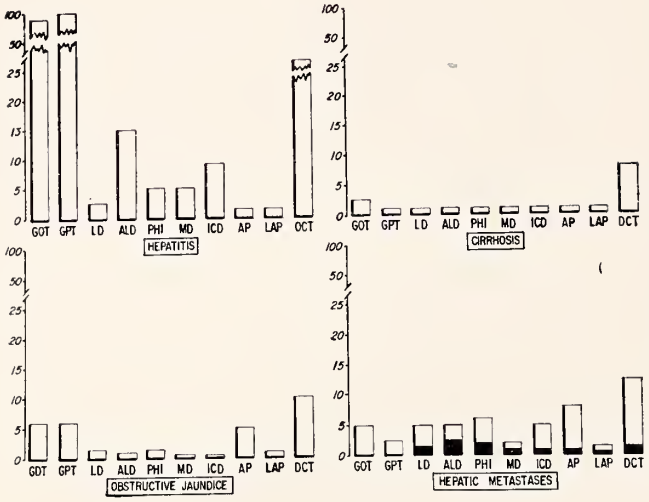


Figure 13.

Diagrammatic representation of relative elevations (in fold-increase over normal) of serum enzymes in hepatobiliary disease. See text for meaning of abbreviations. In the panel designated hepatic metatases, the closed portion of the bars represent the fold-increase of the enzymes without hepatic metastases.

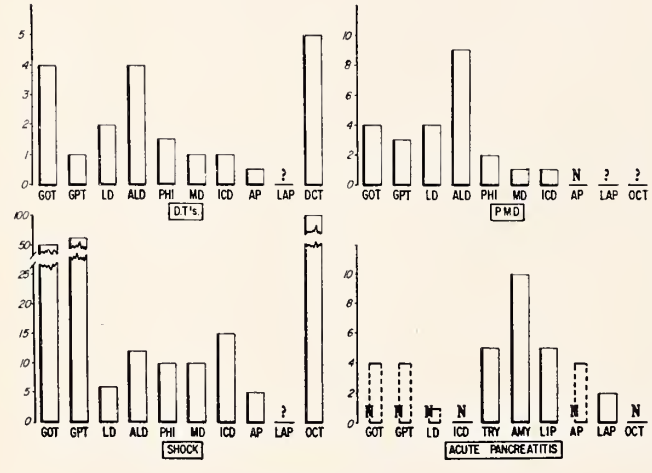


Figure 14.

Diagrammatic representation of relative elevations (in fold-increase over normal) of serum enzymes in patients with delerium tremens (DT's), progressive muscular dystrophy (P.M.D.), shock and acute pancreatitis. The following enzyme abbreviations have been used: trypsin (TRY), amylase (AMY), lipase (LIP), alkaline phosphatase (AP), leucine amino-peptidase (LAP) and ornithine carbamyl transferase (OCT).

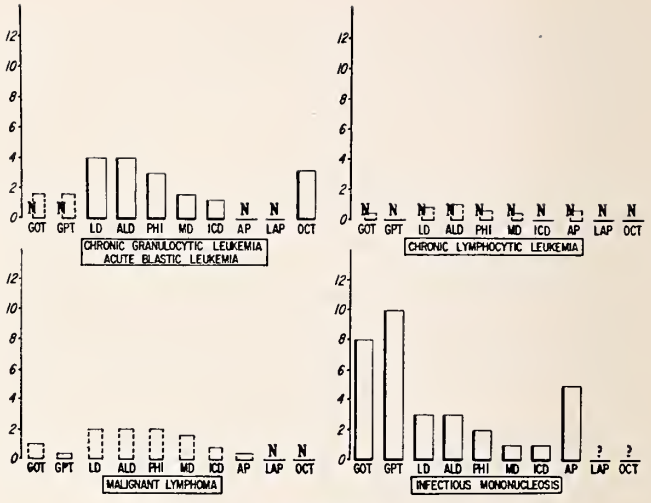


Figure 15.

Diagrammatic representation of relative elevations (in fold-increase over normal) of serum enzymes in patients with leukemia, lymphoma and infectious mononucleosis.

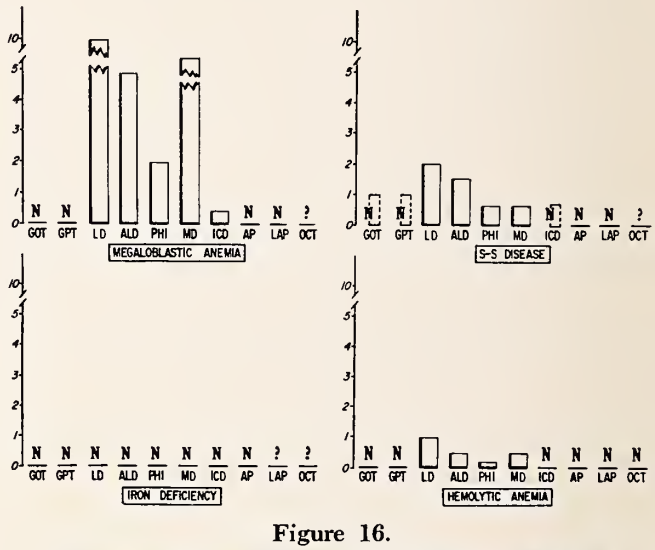


Figure 16.

Diagrammatic representation of relative elevations (in fold-increase over normal) of serum enzymes in patients with several types of anemia.

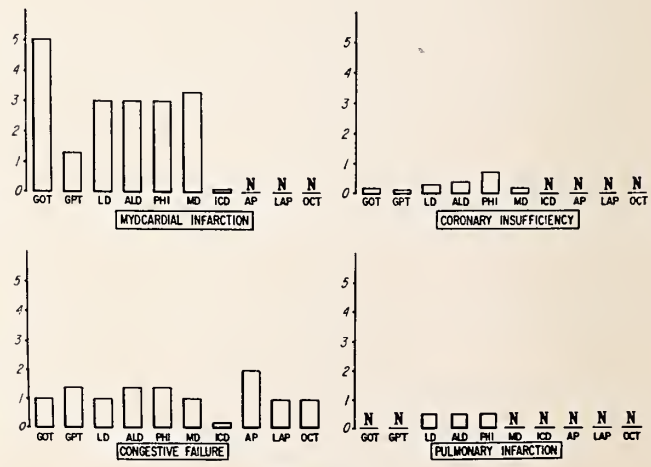


Figure 17.

Diagrammatic representation of relative elevations (in fold-increase over normal) of serum enzymes in patients with myocardial infarction, coronary insufficiency, congestive failure and pulmonary infarction.

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Diagnosis and Treatment of Placenta Previa

John Parks, M.D.
and
Robert H. Barter, M.D.

This is an excellent presentation of the diagnosis and management of the patient with placenta previa. Radiosotopic localization is described. The method of management before and after newborn viability is accurately presented in detail.

PLACENTA previa is an infrequent but serious problem in obstetric practice. The placenta so implanted is a potential source of sudden hemorrhage from a hidden, highly vascular viscus, the uterus. The lives of the mother and her one or more fetuses are in jeopardy from the time of abnormal implantation of the placenta until well after delivery of the products of conception.

What happens when the placenta occupies the lower uterine segment? During the last half of pregnancy, instead of developing into an ovoid structure, the uterine cavity remains spheroid in contour. This interferes with engagement of the vertex and contributes to an increased incidence of breech presentation and transverse lie.[1] (See Fig. 1) In addition, when the placenta is situated on the posterior wall of the uterus, below the brim of the true pelvis, the capacity of the inlet is reduced by the thickness of the placenta. As the lower uterine segment thins out, lengthens and widens to accommodate the growing fetus, the lower and least fixed portion of the placenta may disrupt, resulting in acute hemorrhage before the fetus has reached maturity.[2]

Department of Obstetrics and Gynecology, The George Washington University School of Medicine, Washington, D.C.
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Fetal malpositions requiring manual and instrumental manipulative deliveries in the presence of spongy lower uterine placental sites have, in the past, led to a high incidence of rupture of the lower uterine segment. The decidua basalis is less well developed in the lower uterine segment. Accordingly placenta accreta is an added infrequent complication of placenta previa. The relative hypocontractility and increased vascularity of the lower uterine segment, plus imperfect placental separation, predispose to postpartum hemorrhage. The proximity of the placental site to the potentially virulent organisms of the vagina, plus uncorrected anemia due to excessive blood loss, predispose to postpartal infection.

Symptoms

A patient who has had prior pregnancies may indicate that she is "not carrying this baby" just right and she may have some associated vague backache. The most significant symptom of placenta previa is painless genital bleeding. Painless blood loss during late pregnancy should be considered due to placenta previa until proved otherwise. The blood lost is usually bright red and frequently comes in gushes. Recurrent epi-



Fig. 1.
Compounded transverse presentation with placenta previa.

sodes of bleeding at different periods of pregnancy strongly suggest placenta previa.

Physical Findings

Fetal Malposition: Persistent displacement of the fetal head, an unengaged breech presentation, or a transverse lie should immediately bring to mind the possibility of placenta previa. Recurrent malpresentation is of more diagnostic significance in the nulliparous patient than in the multipara.

Blood on the Soles of the Feet: Frequently the patient's first symptom of genital blood loss is a sensation of warm fluid spilling from the vagina. This may occur at any place, at any time. Her first reaction will be to hurry to a bathroom for purposes of investigation and control of the situation. In the process of going to the bathroom, blood will flow down her legs into her shoes or onto the floor. After expelling blood from the vagina and after she has provided herself with a towel or some other means of protection, the patient will usually proceed to wash the blood from her thighs and lower extremities before going to the hospital. Because of her physical inability to reach the bottoms of her feet, she will *not* have washed the blood from her soles. Any patient who gives a history of sudden blood loss and who shows evidence of blood on the soles of her feet will have had a hemorrhage of at least 150 ml. While this is not absolute proof of placenta previa, it is excellent evidence of sudden, serious blood loss and is highly suggestive of placenta previa. (See Fig. 2)

Other Physical Findings: With an initial moderate hemorrhage the blood pressure will remain normal. The pulse is usually elevated due to fear more than to physiopathologic changes in blood volume. Unless the patient is in shock from hemorrhage or unless the fetus has died from causes other than placenta previa the fetal heart sounds will be normal.

Localization of the Placenta by Radiography or by Radioisotopes: In the presence of a persistent fetal malposition or after an episode of painless bleeding that requires no immediate emergency treatment other than hospitalization, the placenta may be localized with a single lateral view soft tissue roentgenogram of the uterus taken with the patient in a semi-reclining position.[3,4,5] The placenta can be demonstrated 95% of the time by this procedure. Maternal and fetal roentgen exposure from a single lateral film is insignificantly small. Placental localization has one major advantage. If it can be demonstrated that placental implantation is not in the lower uterus, the patient who has a transitory episode of bleeding between the 28th and 36th week of pregnancy and who has been carefully examined for causes of bleeding other than placenta previa, may be treated at home rather than in the hospital.



Fig. 2.
Blood on the Soles of the Feet: a sure sign of acute obstetric hemorrhage.
(From Parks & Barter, South. Med. J. 43:696, 1950)

Red blood cells tagged with Cr-51 have been used recently as tracer material for placental localization. Ten minutes after Cr-51 tabeled Type O, Rh negative blood cells are injected into the antecubital vein, the abdomen is scanned with a battery powered portable, one inch crystal scintillation counter containing a radiation meter. Paul, Gahres, Albert and Dodek have perfected this method. They find that radiation intensity adjacent to the placental margin is one-half to one-fourth that over the placenta. The placental margin is outlined on the patient's skin. They have found no transfer of the radioactive material to the fetus.[6]

Rectal Examination: Any patient who gives a history of genital bleeding or who has physical findings suggestive of placenta previa should not be subjected to rectal examination. Such manipulation is of no diagnostic value and may initiate profuse and unnecessary hemorrhage without proper preparation for treatment.

Vaginal Examination: Any patient who has bleeding at any time in pregnancy should have a careful, nontraumatic vaginal examination. If the patient has been examined at earlier periods in pregnancy and is known not to have other possible causes for bleeding or if the bleeding ceases after admission to the hospital, there is no urgency about performing a vaginal examination. As a matter of fact it is best to delay the examination until localization by soft tissue roentgen examinations or radioisotopic methods has tended to rule in or out the presence of placenta previa. If the placenta can be seen distinctly up and away from the pelvis other causes of genital bleeding such as marginal sinus rupture, a ruptured varix, vasa previa, laceration of the birth canal, cervical polyp or erosion should be considered. (See Fig. 3)

No patient who has had an initial hemorrhage and is suspected of having placenta previa should be discharged from the hospital without a vaginal examination using antiseptic measures, a sterile speculum and sterile gloves. This examination should be carried out in an operative delivery room in readiness for any type of obstetric surgery. Properly typed and crossmatched blood should be available for transfusion; intravenous fluids should be started through an 18 gauge needle with an anesthetist, nurses and assistants present. Care should be used not to traumatize the cervix with the speculum. Following visualization of the cervix, gentle palpation of the cervix and lower uterine segment should be performed. Ordinarily if there is no intervening placenta previa the presenting part can be felt with ease through the lower segment. If the cervix is uneffaced and undilated no effort should be made to force the examining finger through the cervical canal. However, if the cervix is dilated sufficiently to admit the insertion of one or two fingers, further palpation through the cervical canal should be performed. Should the membranes be encountered they will yield with

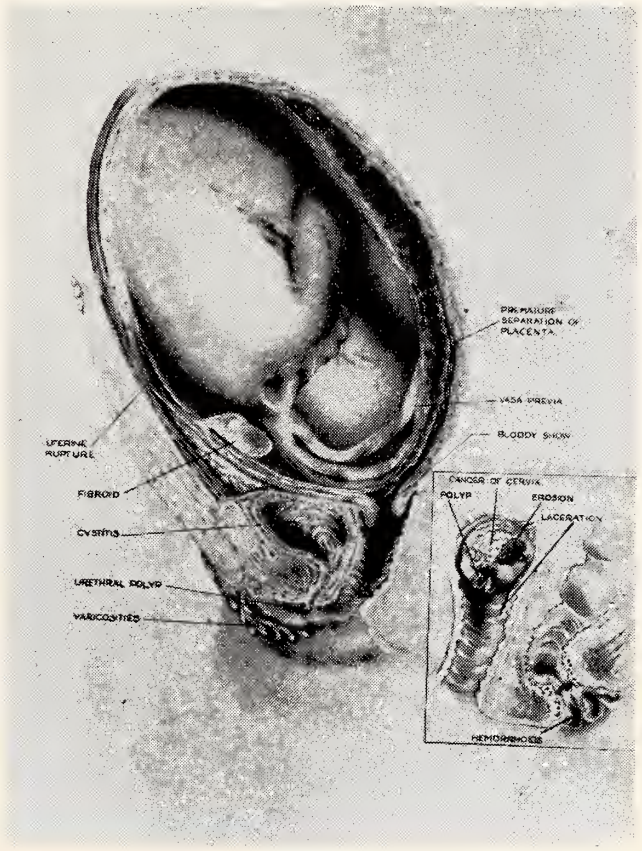


Fig. 3.
Causes of bleeding in late pregnancy other than placenta previa.

increasing tenseness as the placental margin is approached. By following the membranes to the edge of the placenta, the cervical canal will not be confused with the placental edge. Rubbery, soft, movable blood clots can be differentiated from spongy, partially fixed placental tissue which is closely adherent to the membranes. The degree of placenta previa will vary with the dilatation of the cervix and is of more academic than practical importance. Care should be taken not to initiate new and profuse bleeding by intracervical palpation.

Treatment

Treatment of the patient with placenta previa

will depend upon the mother's condition, the presentation, position, and size of the fetus, the amount of blood already lost, the amount of persistent bleeding, the degree of dilatation and effacement of the cervix and the estimated amount of placenta that will cover the internal os at complete dilatation as well as the facilities with which one has to work.[7]

Basically there are three types of treatment for a patient who has a confirmed diagnosis of placenta previa.

1. If the bleeding has stopped, observation to a period of assured fetal viability is advisable. This choice of therapy is to the advantage of the fetus.[8,9] Any expectant mother who is known to have a placenta previa should be treated in the hospital and not at home. She has a placental aneurysm which is hazardous to her life as well as to the life of her unborn fetus. Palcenta previa is as serious and as significant a threat to the well being of the patient as if she had a large arteriovenous aneurysm involving the surface of her thigh. As a rule first hemorrhages from placenta previa do not kill; subsequent ones can. She should be treated in a hospital.

2. When a living fetus of visable size is presenting as a vertex, with the head well flexed, the cervix effaced and dilated, the placenta potentially covering only a small part of the cervical canal at full dilatation, rupture of the membranes is the treatment of choice. Ordinarily pressure of the fetal head against the placental margin follows rupture of the membranes thus stopping further blood loss. If indicated, labor may be facilitated by the controlled use of slowly administered intravenous Pitocin® solution.

3. Cesarean section is indicated when hemorrhage is profuse and/or persistent with the cervix undilated and uneffaced, when the placenta covers half or more of the cervical os, when placenta previa is associated with pregnancy after the 36th week in any patient whose fetus presents transversely or as a breech regardless of the degree of placenta previa.[10,11]

Podalic version with compression of the placenta by the unborn's body may help control bleeding, but it will certainly decrease the chance of fetal survival. The fetal head of the premature fetus is disproportionately large compared to the size of its body. Delivery of the aftercoming head of the premature fetus can easily result in rupture of the lower uterine segment at the site of placenta previa. Version and extraction is the least favorable method of delivery of the fetus and is the most hazardous for the mother.

No longer is there any indication for the use of a Voorhees bag in the treatment of placenta previa. The bag overdistends the uterus, increases the frequency of malposition, introduces infection, and does not remove soft tissue obstruction from the birth canal. The bag may temporarily control bleeding, but when it is expelled, it leaves the presenting part high in the birth canal with the placenta intervening.

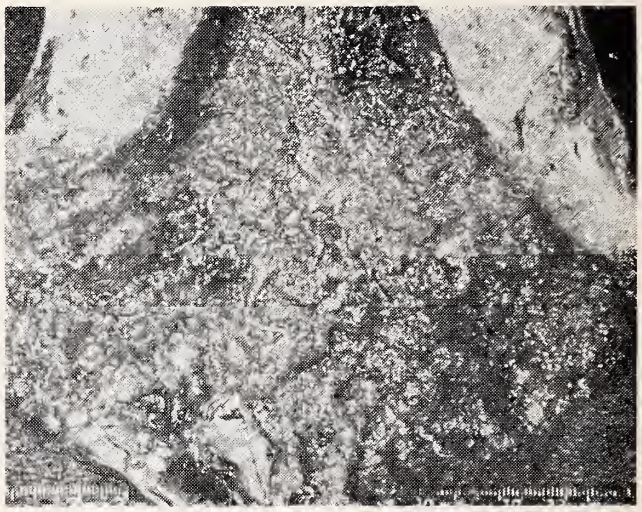


Fig. 4.
Placenta accreta complicating placenta previa of the posterior uterine wall.
(From Parks, Barter & Hill, Obst. & Gynec. 2:391, 1953 Courtesy Dr. C. K. Fraser)

The type of cesarean section performed will depend upon findings. Usually a vertical incision through the cervical segment is most satisfactory. A transverse incision of the uterocervical segment, particularly in the presence of an anterior placental implantation, is usually accompanied by an unnecessarily large amount of blood loss. The placental site must be examined for evidence of incomplete removal of placental cotyledons and for large bleeding sinuses. Placental cotyledons which cannot be removed are an indication for hysterectomy.[12,13,14] (See Fig. 4) Placental sinuses tend to remain open due to the poor contracility of the lower uterine segment. They should be ligated with transfixing sutures.

The Newborn

The newborn should be observed immediately after delivery for evidences of blood loss due to incision through the fetal placental circulation. Fifty to 100 ml. of blood loss from the fetal cir-

culation is seriously significant to the newborn and should be replaced immediately.

Conclusions

Although placenta previa is a relatively infrequent complication occurring in about 1 out of 150 late pregnancies, it is always a serious obstetric problem. Painless genital bleeding is the most significatn symptom. Patients with profuse bleeding should be brought to the hospital by ambulance.

Fetal malposition and blood on the soles of the feet are highly suggestive physical signs of placenta previa. Localization of the placenta can be accomplished with a high degree of accuracy by a single lateral roentgenogram or by radioisotopic procedure. Rectal examination has no diagnostic value and is dangerous for the patient who has placenta previa. Vaginal examination, in an operative setting with staff and facilities in readiness for surgical therapy, is the most accurate way of making a diagnosis of placenta previa.

The fundamental therapeutic principles for placenta previa are: preserve the pregnancy well into the period of newborn viability, if possible to the 36th week; rupture the membranes and facilitate labor when the head is presenting and the placenta covers only a small part of the cervical os; perform a low cervical cesarean section using a vertical incision for patients who have fetal malposition and placenta previa or who have more than two-thirds of the cervical os covered with placenta regardless of the fetal presentation; clamp the cord immediately before delivery of the fetus when cesarean section incision extends through the placenta; replace any significant fetal blood loss; prevent, if possible, maternal blood loss, and replace that which is lost (no blood is as good for the patient as her own blood); remove all of the placenta, and finally see that all large sinuses of the placental site are closed spontaneously or by suture. Placenta left in the mother and unclosed sinuses can leave the newborn without a mother.

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Public Health Aspects of Congenital Abnormalities

Warren A. Colton, Jr., M.D.

This is an excellent review of the history of the crippled children's program in Arizona and the origin in 1936 until now. The present facilities are described, and the cost of treatment is compared wtih other areas of the country.

A short statement regarding eligibility to the Crippled Children's Hospital in Phoenix and the clinics is given. An illustrated description of the diagnosis and treatment of congenital clubfeet follows. The second portion deals wtih the diagnosis and treatment of congenital hip dislocations. The outline is complete and the illustrations are self explanatory.

NO attempt will be made in this paper to discuss the entire field of congenital defects. An effort will be made to review the care of the Crippled child in Arizona through the years. This will constitute the first section of this paper. The second section will be made up of a fairly detailed review of current methods of recognizing and treating two of the more common congenital defects, club feet and congenital dislocations of the hip. It must be pointed out that my interest in this field is primarily of an orthopedic nature. Other specialties such as Plastic Surgery, Urology, Neurology, Neurosurgery, Ophthalmology, Ear, Nose and Throat, Pediatrics, Cardiovascular Surgery, Anesthesiology and Radiology are all making great contributions to the care of these Arizona children.

Presented at the 71st Annual Meeting, The Arizona Medical Association, Inc., Safari Hotel, Scottsdale, Arizona, on April 27, 1962.

History of the Care of the Crippled Child In Arizona

Prior to 1936 volunteer clinics were held in Tucson, Phoenix and in other cities about the state. Ruth Wendell, R.N. and Helen Bishop, a medical social worker, who were employees of the Department of Public Welfare, supplied the driving force behind these clinics which were run primarily on Federal funds. Dr. Joseph Greer in Phoenix and Dr. George Dixon in Tucson were among the doctors participating in them.

In 1936 the Division of Crippled Childrens Services was established under the Arizona State Department of Public Welfare. Dr. James Lytton-Smith became Medical Director on a part time basis. Dr. Dixon continued to operate the Tucson Clinics. Approximately half of the funds for this program were Federal.

In 1949 the Federal Government attempted to

require the Division of Crippled Children to take over the care of the Reservation Indian Children. These children were, at that time, being treated under the Orthopedic program of the Indian Service. This attempt was similar to what had been done in many other states, using the Federal money supplied as a lever to force the various states to assume the care of the Indian Children. It was felt in Arizona that to take this additional load into our program would work to the detriment of the children already being cared for. As a result Arizona paid the full cost of the care of its crippled children and continues to do so at the present time. Through the years continual pressure has been brought to bear from various branches of the Federal Government to bring U.S. funds into our program. We feel that we operate not only one of the best but also one of the most economical programs in the United States. This is in no small measure due to the cooperation of the State Medical Association and its members. The following figures are presented in support of this belief. In San Diego County, California, whose population is essentially the same as that of Arizona, their 1961 program cost $2,100,000.00, ours was $628,000.00, a little over ¼ of theirs. In the State of Michigan where the Crippled Children case load was 7,600 in 1961 compared to our 6,800 their program cost over 3 million. Stated in a different way this means that in Michigan it cost $394.00 to take care of each case while during the same period in Arizona it cost us $92.00 for each case.

In 1942 a Convalescent Hospital was built on the site of our present Hospital at 18th Street and Garfield in Phoenix. This hospital housed 40 beds and the Out-Patient Clinics. Surgery was done in the local private hospitals. In 1960 a new wing was added giving us our own surgery and a new modern out-patient section. Twenty additional beds were added at this time. There is now under construction a wing which will add 40 beds bringing the total to 100 beds. Photographs 1 and 2 show front and rear views of the present hospital.



Figure 1



Figure 2

Approximately two years ago the Legislature passed a law which removed the Crippled Childrens Division from the Department of Public Welfare and established a separate Department of Crippled Children's Services. A five-man Board administers the program. The original and present Board is made up of Dr. Joseph Ehrlich, chairman and Dr. James Lytton-Smith of Phoenix, William Turner of Scottsdale, Dr. John Schwartzmann and Mrs. Fredrick Lowry of Tucson. Mrs. Alice Canon is executive secretary of the Department and in addition serves as Administrator of the State Crippled Children's Hospital and the Tucson Clinics. Much of the credit for our expansion in the past few years goes to Mrs. Cannon. Also within these years we have received final approval of our hospital by the Joint Commission on Accreditation. Only two months ago the American Board of Orthopedic Surgery, after a one year probationary period, approved our certification as a recognized Orthopedic Residency. We have two residents in train-

Table 1	Table 2	Table 3
All children under 21 years old who have a crippling condition, or a condition which may lead to crippling, are accepted for free diagnostic clinic examination.	Types of Conditions Accepted for Care: Cerebral Palsy Arthritis Congenital Cataracts Crossed Eyes Bone Deformities Burn Deformities Birth Defects Other crippling conditions	Types of Surgery Performed for Care of the Crippled Child: Orthopedic Plastic Heart and Chest Brain Eye Hand Ear, Nose and Throat General Pediatric Surgery

ing and will soon add a third. This is the only approved Orthopedic Residency in Arizona.

Before starting the clinical portion of this paper it should be emphasized that in order for a child to be examined and considered for treatment all that he needs is a referral from a doctor practicing in this state. This examination is done at either the Tucson Clinic or at the Crippled Children's Hospital in Phoenix. We do not run clinics or do examinations in other parts of the state. The above tables indicate: 1. Definition of Eligibility for Care, 2. Types of Conditions Accepted for Care, and 3. Types of Surgery Performed.

The Recognition and Treatment of Congenital Club Feet

The early diagnosis of talipes equinovarus deformity of the foot is essential to its proper treatment. In most cases, if adequate treatment can be started within the first two or three weeks after birth, a good result is assured. Photograph 3 shows a case of bilateral club feet age 3 months. All of the diagnostic tests are designed to show the resistance of the child's foot to placing it in a position of dorsiflexion and valgus. Most club feet can be corrected by means of a series of casts which gradually force the foot into abduction and valgus. After this has been achieved further casts are used to bring the foot into dorsiflexion. Photograph 4 is shown to demonstrate the application of a club foot cast. A subsequent photograph (5) shows the same child after approximately two months cast treatment. Uncorrected club feet in older children and club feet which recur after adequate treatment require such surgical procedures as Tendon Achilles Lengthening, tendon transfers, and Triple Arthrodesis.

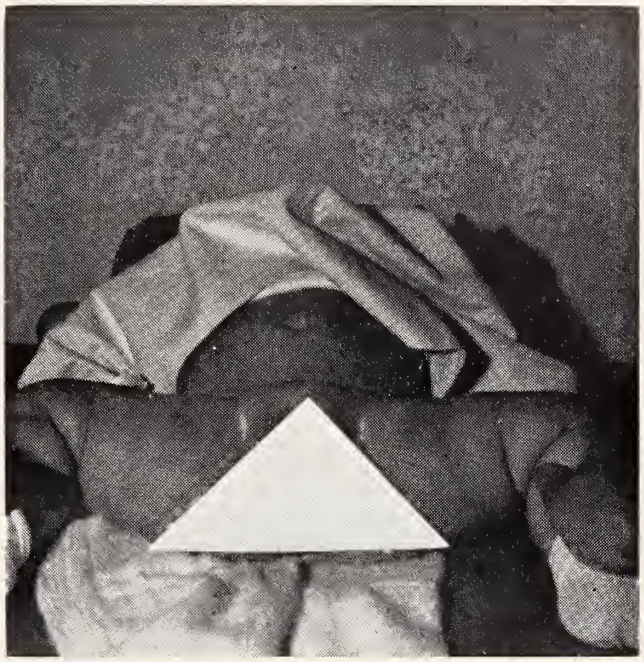


Figure 3



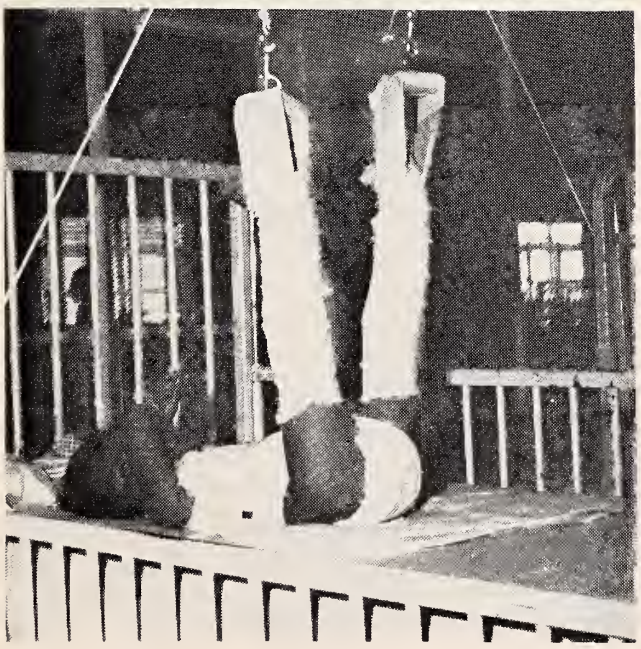
Figure 4











Upper left — Figure 5
Upper right — Figure 6
Middle left — Figure 7
Middle right — Figure 8
Bottom — Figure 9

Recognition and Treatment of Congenital Hip Dislocations

As with club feet, the early recognition of a congenital dislocation of the hip assures uniformly better results. Unfortunately the large majority of the dislocated hips which we treat are not seen until the child has started to walk. The routine examination of the new born should include the "Flexion-Abduction Test" or "90°-90° Test" of the hips. These are shown in photographs 6 Normal Child, 7 Right hip has restricted motion, and 8 an x-ray of the same child showing a dislocation of the right hip. Extra skin folds in the thigh on the dislocated side may be present but not invariably so.

The treatment of the dislocated hip as with club feet is also conservative. In our hands we find that most of them can be reduced by the application of over-head traction to both legs in the same manner of Bryant's traction as shown in photograph 9. The legs are then gradually abducted over a period of several weeks until they are parallel with the top of the bed as shown in 10 at 90°. The last photograph shows the special Circular traction frame which is used. Following the achievement of the reduction the child is placed in a double hip spica, usually in the so called "Frog Position" in which the hips are in 90° flexion and 90° abduction. The knees are likewise flexed to 90°. 11 shows x-rays of the same child after application of her first cast. Photograph 12 shows a child in one of these casts. At approximately 3 months intervals the casts are changed decreasing the amount of abduction and flexion. Photograph 13 shows a special bed frame used — note the bed pan beneath eliminating soiling of the cast. The total cast period is usually 9 months to a year. Subluxations of the hip or acetabular dysplasia are frequently treated in abduction splints. One of these commonly used is the Craig splint shown in photograph 14. Older children may require surgical procedures to reduce or stabilize their dislocated hips. One of these procedures called a "Shelving Operation" is shown. 15 AP x-ray showing an unreduced right hip in a girl age 16 years and 16 an x-ray showing a large shelf which has been built above the dislocated head.



Figure 10

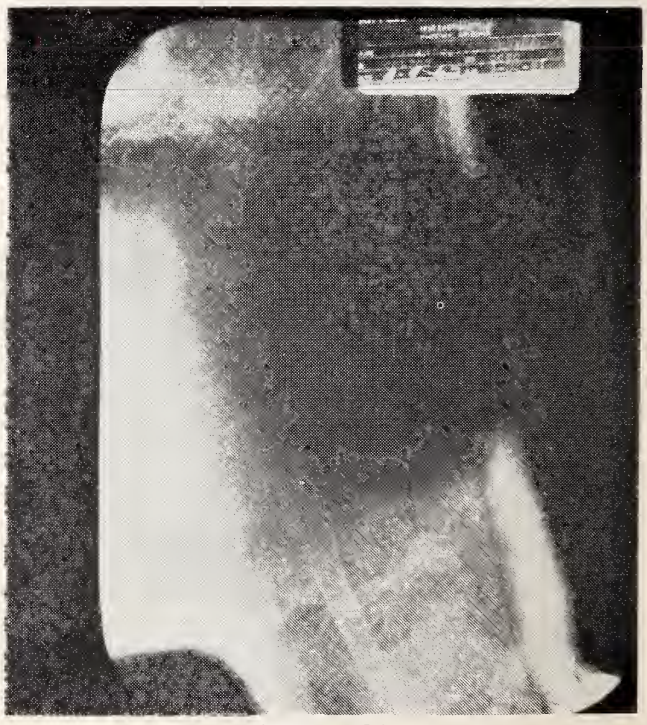
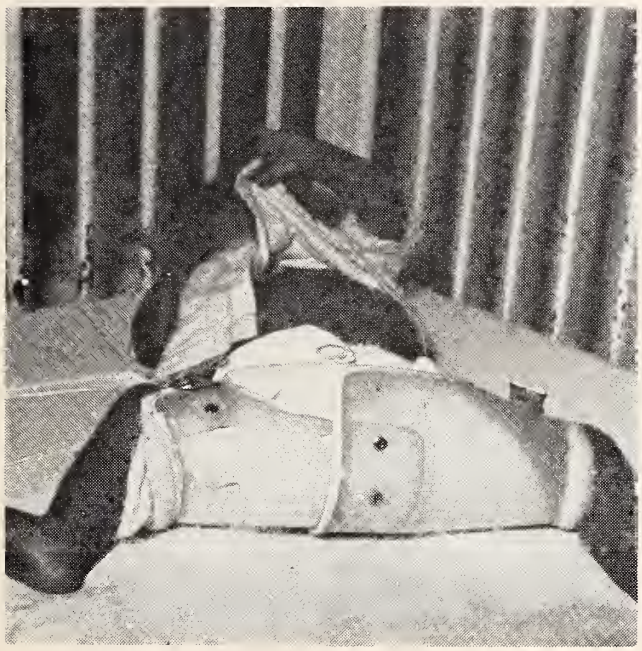
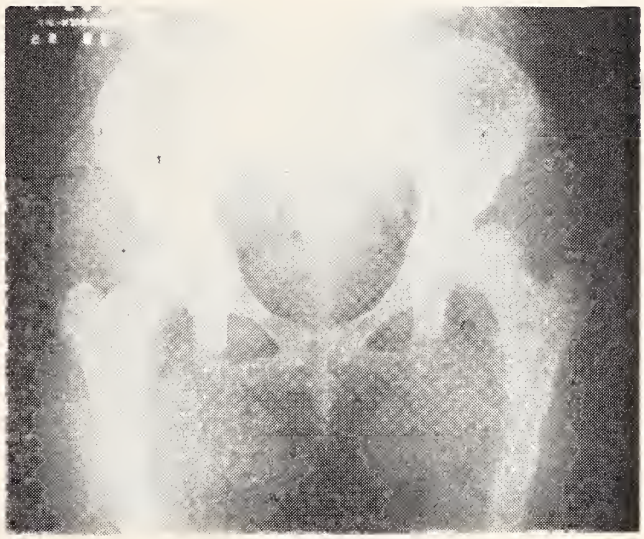


Figure 11











Upper left — Figure 12

Upper right — Figure 13

Middle left — Figure 14

Middle right — Figure 15

Bottom — Figure 16

Prognosis of Malignant Melanoma as Influenced by Therapy

Alton Ochsner, M.D.

Much confusion exists in the minds of most physicians regarding the prognosis of malignant melanoma. In an evaluation of 203 cases, the author concludes that the course of this disease is most unpredictable and 5 year survival is not a criterion of cure. Malignant melanoma must be regarded as a highly malignant lesion and wide local excision, accompanied by regional lymph node dissection, is the treatment of choice. Systemic chemotherapy has not proved to be valuable in treatment.

THERE is no condition about whose prognosis so much misconception exists generally among the physicians in the United States as malignant melanoma. Either it is considered a lesion of not much significance, which can be treated in almost any way (irradiation or burning or simple excision), or it is believed to be a hopeless condition.

Both of these are misconceptions, because melanoma is a relentless malignant disease. However, if treated properly, the results are not bad, generally. On the other hand, there is probably no malignant disease which is so unpredictable as is malignant melanoma. In the first place, in regard to life expectancy in melanoma, entirely different standards must be used. There are actually three diseases that fall into this category. One is cancer of the breast. There is no such thing as five year cures of cancer of the breast. It is not unusual for a woman with carcinoma of the breast who has been perfectly well only to have a recurrence after ten or fifteen years. Carcinoid is another one; melanoma is another. It also can apparently remain dormant for long periods of time. My first awareness of this was about twenty-five years ago when I saw a patient with a lesion in the lung which I suspected was carcinoma. She had had one eye removed about twenty-five years before because of a malignant tumor. The pathololgic diagnosis was not available. Because the patient had been perfectly well during the ensuing twenty years, we thought that there was no relationship between removal of the malignant tumor of the eye and the thoracic lesions. At operation the thoracic lesion proved to be a melanoma, and within a year the patient was dead of extensive melanosis.

The other unusual thing about melanoma is that it usually does not produce cachexia. Even patients with widespread melanosis are not cachectic. Any other malignant lesion of much less extent produces cachexia which is out of proportion to the extent of involvement. We don't know why melanomas act differently from other malignant disease.

Although our experience with this lesion is not great, we can draw some conclusions from it.

Presented at the Annual Fall Clinical Congress of the Arizona Chapter, American College of Surgeons, Hotel Superstition Ho, Apache Junction, Arizona, on November 16, 1961.

Classification

We have had 203 consecutive cases. These were divided into four groups. Group I included all patients in whom the primary diagnosis was made and therapy carried out at our Clinic. There were 27 patients (13 per cent) in this group. We believe that melanoma is a malignant lesion that should be treated by wide extirpation of the original lesion. This requires closure by a graft or a flap. Because there is extension in the immediate vicinity for considerable distance, excision should include the deep fascia. We also believe that prophylactic regional lymph node resection is desirable in most cases. Two weeks ago I did operate on a relatively young man who had a junctional nevus with beginning malignant change. This was such an early change (it was almost the juvenile type of melanoma) that I felt justified in not doing regional lymph node dissection. Fulguration should never be done.

Group II is also small (25 cases, 12 per cent). We saw these patients within two weeks after the tissue diagnosis was made elsewhere. They were treated in the same way as the first group.

Group III (28 cases, 14 per cent) consisted of patients who had had primary therapy elsewhere and no evidence of metatasis when we saw them. They had wide excision but no lymph node dissection. Considerable time—weeks, months, and sometimes a year — had elapsed between local excision, which was not wide enough to require grafting, and which was not associated with lymph node resection, and the time we saw them. Those, we believed, should have wide resection, simply because adequate therapy was not done in the beginning.

The largest group (123 cases, 61 per cent) consisted of patients with distant metastasis when first seen. Treatment consisted of excision of the solitary metastatic lesion and chemotherapy. Melanoma is one malignant condition which has not responded favorably to systemic chemotherapy. However, if the lesion is limited to an extremity, perfusion gives the best results. Thus, melanoma is susceptible to chemotherapy if a large enough concentration can be obtained. This can be accomplished by regional perfusion. Unfortunately, there are not enough lesions limited to an extremity to make it worthwhile. The first patient treated by perfusion by Creech and associates (1) had an extensive melanoma with satellite tumors throughout the extremity. Four and a half years later, the patient is well, and we believe has a chance of remaining well.

Complexion

This disease primarily affects persons with light complexions. It is almost nonexistent in the Negro — I have never seen melanoma in the Negro — and it is less likely to occur in persons with dark complexions. But the fair skinned redhead with blue eyes is the one who is more likely to have melanoma than the person with dark skin.

Age

In our cases the sexes were about equally distributed. Fifty-five per cent were males and 45 per cent females. Most of the patients were between 30 and 60 years of age. However, the two extremes of life are not exempt. True melanomas do occur before puberty and the juvenile type occurs in those beyond puberty, but many of these had lesions before puberty.

Prophylactic Excision

Should these lesions ever be removed prophylactically? Obviously, it is impossible to remove every mole on every person. However, there are certain moles that I believe should be removed. These include moles in an area which might become irritated, such as by a collar, strap or belt; moles about the genitalia, which have a bad prognosis; and moles on the volar aspect of the hand and the plantar aspect of the foot.

Clinical Manifestations

In 84 per cent of our patients the only manifestation was a pigmented mole. In 67 per cent, the mole was enlarged; 50 per cent noted paresthesias in the mole which had not been present before; 34 per cent had a palpable mass, usually metastatic; 6 per cent had ocular symptoms; and in 4 per cent, the primary lesion was unknown.

Site

The trunk, which included the shoulders, hips and genitalia, was the site of involvement in 35 per cent of our patients. Twenty-two per cent had lesions of the head and neck exclusive of the eyes. Nineteen per cent had lesions on the lower extremities, 12 per cent on the upper extremity, 7 per cent in the eye, and in 5 per cent the site was unknown.

Survival Rate

We were not able to follow all of our cases. Of the entire group 64 per cent are known to be dead and an additional 10 per cent are presumed to be dead, or a total of 74 per cent. In groups I

and II, 21 per cent are known to be dead and an additional 6 per cent are presumed dead. Of those in Group III 52 per cent are known to be dead and an additional 15 per cent presumed dead, and of those in group IV, 85 per cent are known to be dead and an additional 9 per cent presumed so.

Of the entire group 26 per cent are apparently free from disease. The respective figures for groups I and II are 21 per cent, for group III, 33 per cent, and for group IV, 6 per cent. The total survivors according to location were as follows: lower extremity, 34 per cent; head and neck, excluding the eyes, 27 per cent; trunk, 20 per cent; upper extremity 17 per cent, and the eyes, 7 per cent.

Sex apparently influences survival in that 19 per cent of our male patients are living and 34 per cent of our female. Of the males 72 per cent are known to be dead and an additional 9 per cent presumed dead. Among the females these respective percentages were 54 and 12.

AGE was also a factor in prognosis; 33 per cent of those younger than 50 years and only 18 per cent of those older than 50 are apparently free from disease.

The long term survival rates varied considerably according to the type and time of therapy. Of those in groups I and II 64 per cent survived five years and 53 per cent survived ten years; of those in group III these respective percentages were 27 and 26, and of those in group IV, they were, 2 and 1.

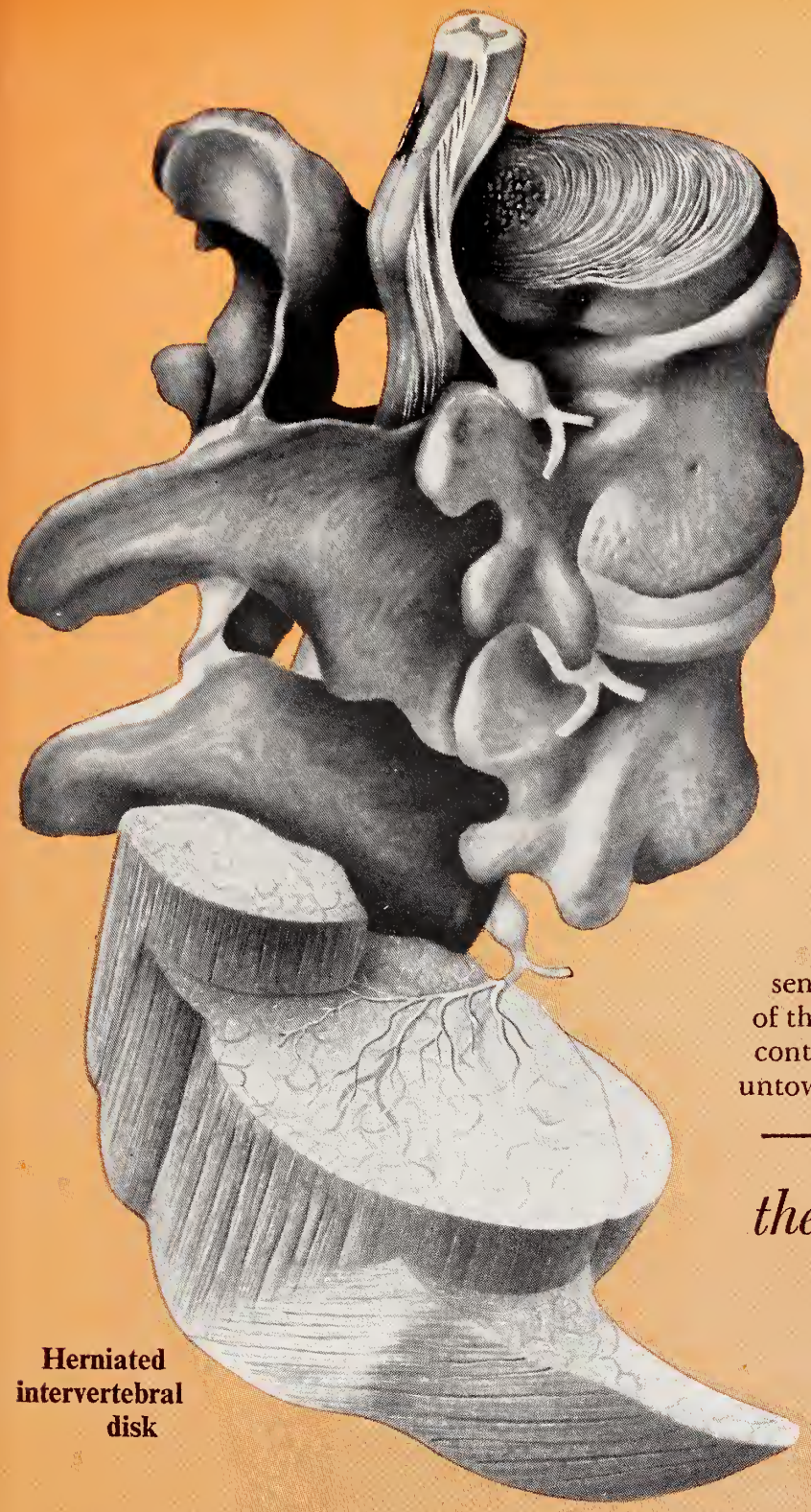
In melanoma, as previously emphasized, the five year survival rate is not as significant as in most malignant lesions. In this series, of 163 patients seen more than five years previously, 32 per cent survived five years, of which about half (17 per cent) are apparently well but the rest (15 per cent), after living five years apparently free from disease, succumbed, many of them to recurrence but some to other causes.

Of those in the age group 20-29, 53 per cent survived five years, of which most (42 per cent) are still alive but a small group (11 per cent) died after surviving five years. Of those in the age group 50-59, 25 per cent survived five years, of which a small group (8 per cent) are still living and a much larger group (17 per cent) died after surviving five years. Many of these died of other causes, however.

IN conclusion, the prognosis of malignant melanoma is not good, but it is not hopeless. Malignant melanoma should be considered a highly malignant lesion which must be treated by wide excision of the primary lesion (wide enough to require grafting) followed by regional lymph node dissection. If the location of the lesion is such that *en bloc* excision of the deep fascia between the lesion and the regional lymph nodes is possible, this should be done. Of course, if the lesion is on the foot, that would be impractical. I think one of the reasons why the prognosis of melanomas on the trunk is so poor is that frequently we are at a loss to know just where to do the regional lymph node dissection. For instance, lesions in the anterior portion of the trunk or in the posterior part of the trunk can metastasize to both inguinal areas and to both axillary areas. And so there is a question of what one can do. I would like to reiterate that this is a malignant disease, and an unpredictable one. But if we treat it adequately, the results need not be as bad as we ordinarily think.

REFERENCE

1. Creech, O., Jr., Krementz, E. T., Ryan, R. F. and Winblad, J. N.: Chemotherapy of cancer; regional perfusion utilizing an extracorporeal circuit. Ann. Surg. 148:612-632 (Oct.) 1958.



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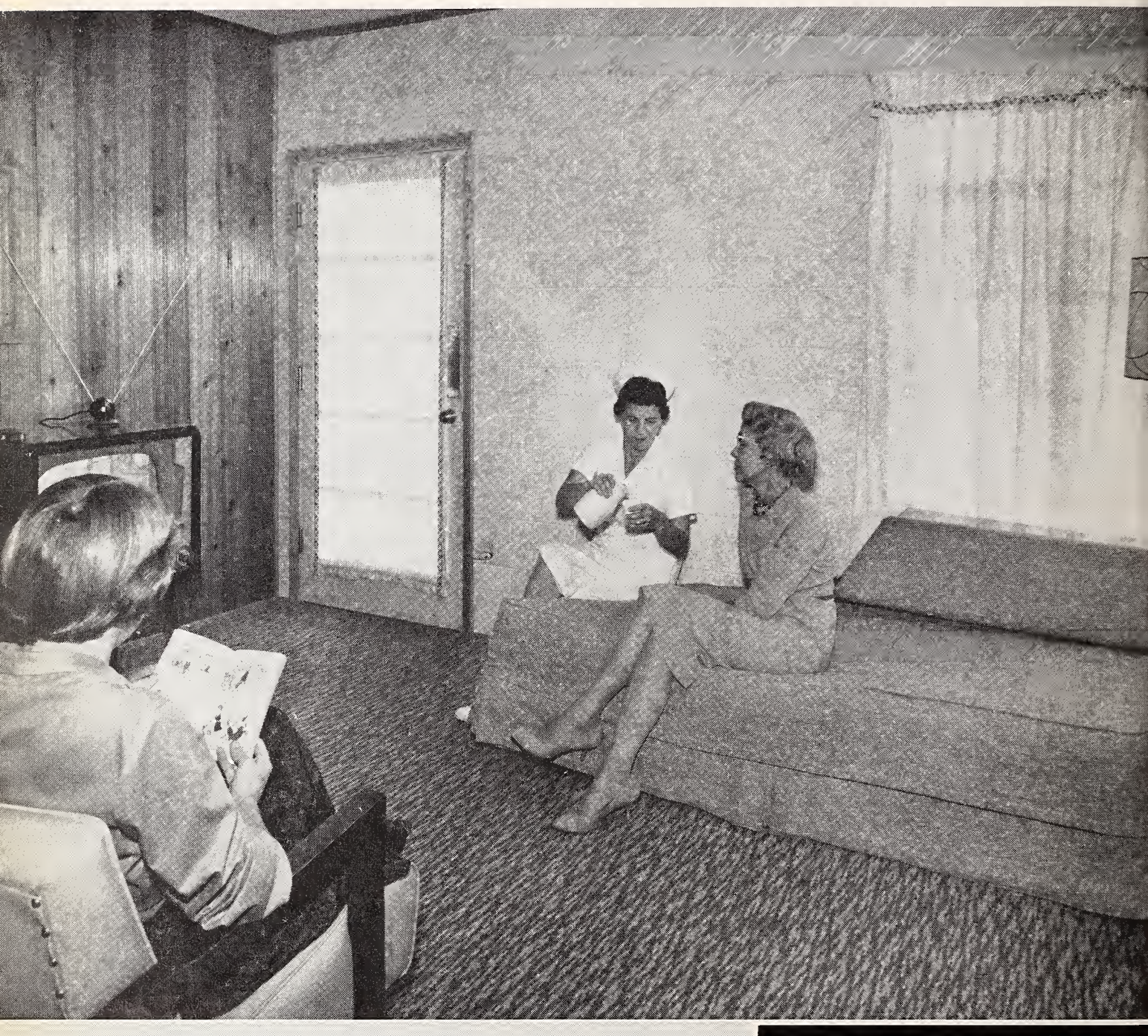
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"A rose is a rose is a rose." This famous line is true even in this day of semantic "double-think" when deficite spending is called "fiscal responsibility" and social security taxes are called "insurance premiums."

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In a recent speech entitled "'Fedicare – 1963", I defined "Fedicare" as the sponsoring, financing, or control of plans by the federal government in any of the health care fields. Whether one argues for or against such federal plans, truth dictates their accurate definition. Whether one takes an affirmative or a negative stand in their debate, honesty requires a true presentation of the issue.

In Latin the verb "medicare" means "to heal." In the newspapers "Medicare" means King-Anderson legislation. In truth the federal government's sponsorship, financing and control, through social security taxes, means federal care or "Fedicare" with a big "FEDI" and a small "care." More and more physicians are discarding the term "Medicare" with its subtle and false implications. Let us suggest that the news media likewise call a spade a spade, and call federal proposals in health care fields by the name which defines them as federal plans and not medical plans.

Communication demands truth, and besides, a rose *is* a rose and "Fedicare" *is* "Fedicare."

Robert F. Lorenzen, M.D.
Editor

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Emotional Immaturity

Educators stress the stages of development of the individual. It is implied that the adult must leave behind the vulnerabilities and longings of adolescence. And the adolescent is supposed to outgrow the hungers and drives of childhood. The term, emotional immaturity, is used in disparagement — as if there were a difference between emotional maturity and immaturity.

There isn't. The instincts and feelings of the adult are essentially the same as those of the adolescent, the child and the infant.

The adult who tries to deny his infantilism will become estranged. He will pretend that he does not want affection and recognition. He will invite no fellowship. He will not come out and play.

In pretending not to be immature he will treat us dishonestly and hurtfully. He will be like a child, running away from home, looking back piteously, needing to be reassured. He will employ neurotic techniques to deny — and still betray — the simple longings which the rest of us are willing to admit.

Why pool these longings behind dams of deceit? We are all guilty and afraid. We are all lonely and sensitive, timid and awkward and eager to please.

A person actually becomes mature by acknowledging his immaturity in *all* its aspects. He integrates his uniquely conditioned hungers, however infantile, into his whole life plan.

A universal example is the need of authoritative guidance. Should it be repudiated? No. Flowing easily from childhood into adult life, it should not narrow but widen to enfold the individual's religion. This same fluidity and gentle widening should carry along the needs to love and to be beloved, especially in their undifferentiated forms.

Awareness of the continuity of one's instincts is an essence of mental health. Maturity recognizes only the moral conditions or circumstances of their expression.

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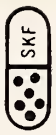
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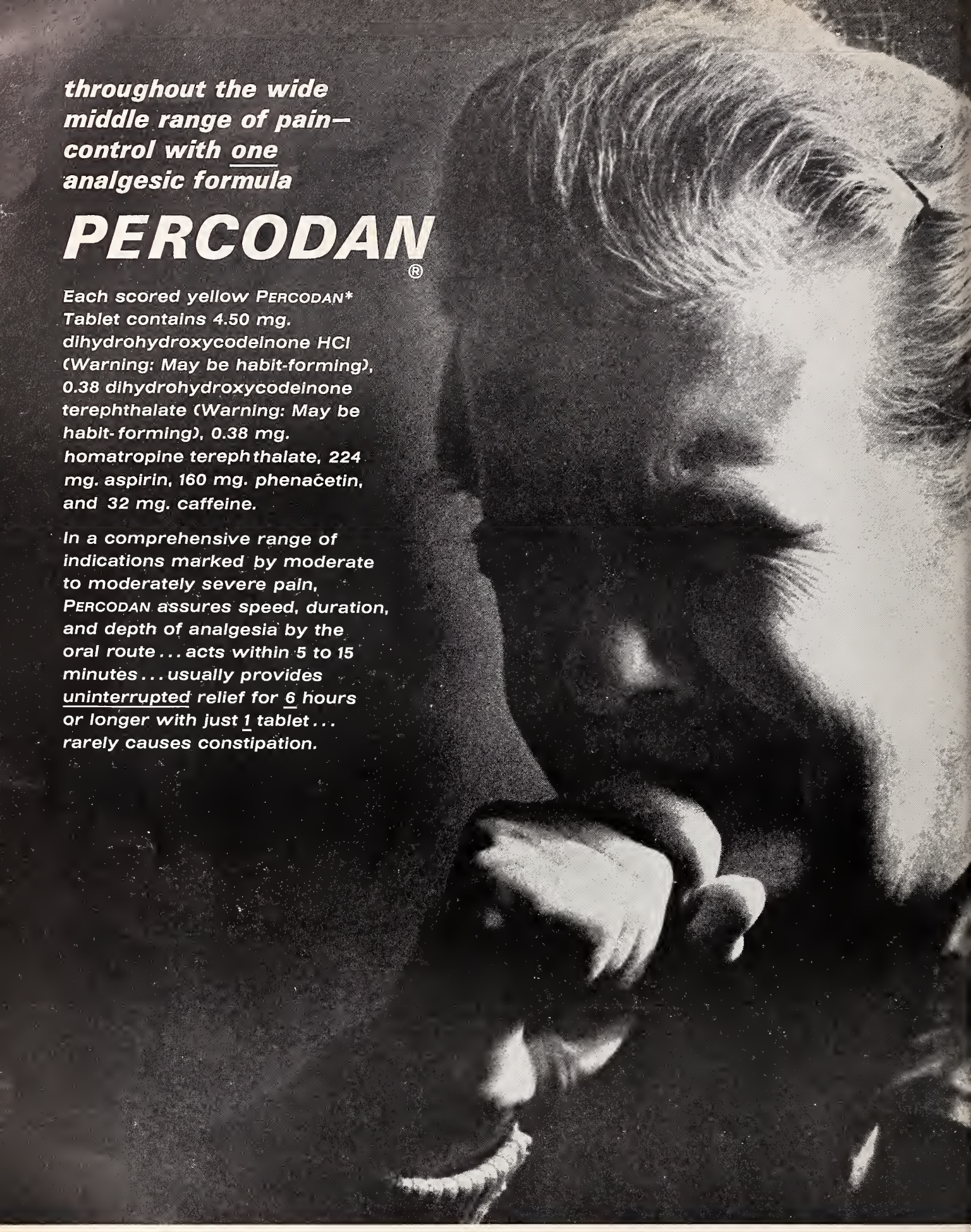
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Composition: Each tablet contains mebutamate, 300 mg.

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References: 1. Corcoran, A. C., and Loyke, H. F.: J.A.M.A. *181*:1043, Sept. 22, 1962. 2. Costello, A. C.: M. Times *91*:53, Jan. 1963. 3. Holloman, J. L. S., Jr.: J. Nat. M. A. *54*:94, Jan. 1962. 4. Kheim, T., and Kountz, W. B.: New York J. Med. *62*:1596, May 15, 1962. 5. Leslie, C. H.: J. Am. Geriatrics Soc. *10*:85, Jan. 1962.

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Thomas O. Rowley, M. D.

1920 - 1963

While vacationing in Guaymas, Mexico with his wife, Barbara, Tom Rowley died in an automobile accident, leaving his family, friends, community and the medical fraternity with a profound sense of sorrow and loss.

Dr. Rowley was born in Marshalltown, Iowa, on March 19, 1920. He completed his medical training at the University of Iowa Medical School in 1944, remaining there for his residency in obstetrics and gynecology. He interned at Highland Hospital in Rochester, New York and was licensed to practice in Arizona in 1948. At the time of his death he was associated with Dr. Dean A. Rowley (no relation) at 550 N. Country Club Drive, Mesa.

Having been both my close friend and medical associate for many years, there are many things for which I would like him to be remembered. From the day he opened his office there stood on his desk a picture of his old chief, Dr. John Randall, who symbolized the ideals of medicine which he was taught and by which he lived and practiced; and from which he did not deviate in his attitude toward his practice and fellow physicians. He knew no compromise in the best management of the medical problem regardless of the severity of the circumstances, and was unable to tolerate anything but the best as far as his ability to practice medicine was concerned.

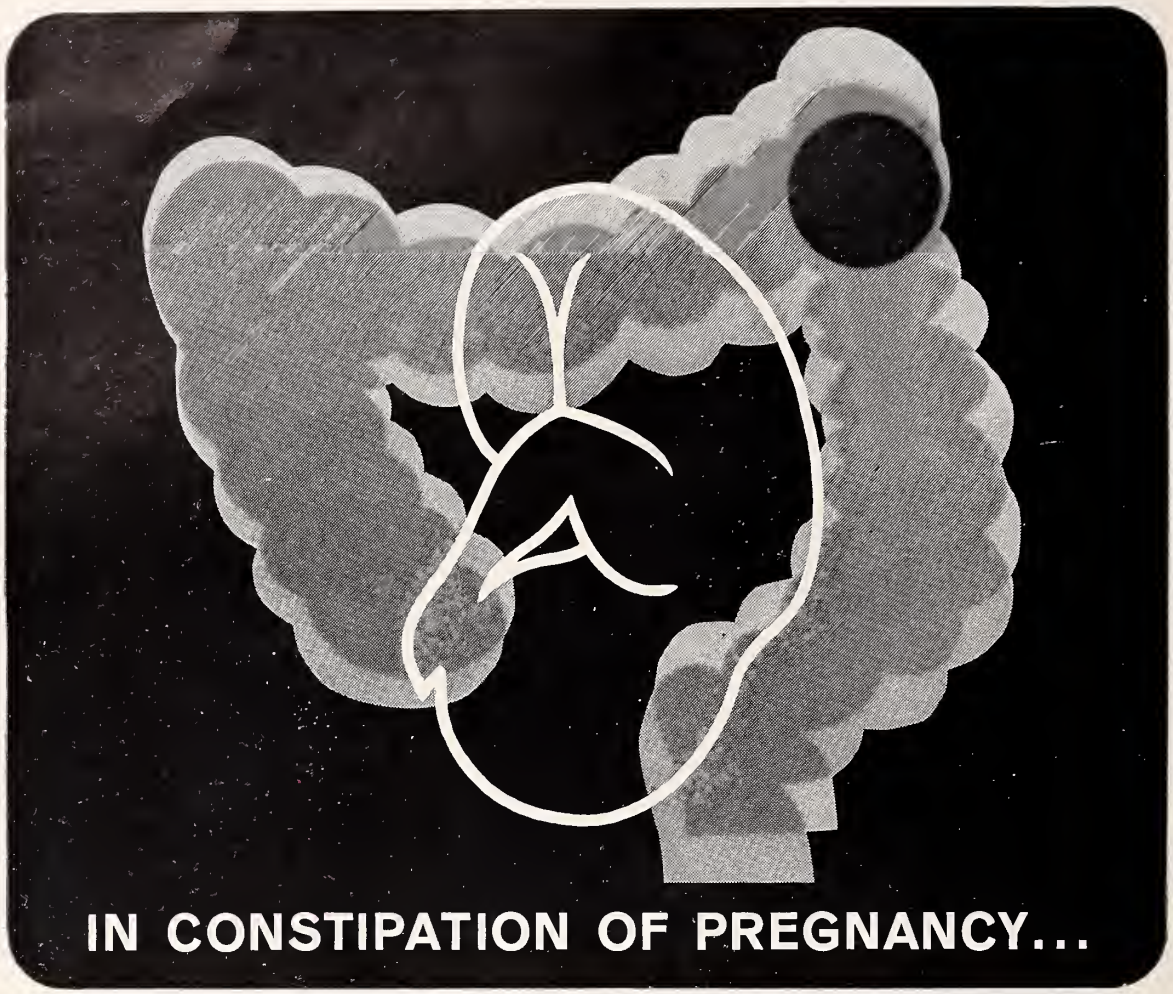
He loved people for people's sake. At the time of his passing a young Mexican boy was living in his home, only because the boy needed a home and Tom was able to provide it for him without cost. He recently gave a home to an immigrant Italian because the man had no place else to go. Tom was never so far away from his practice but what he was available to someone who might need him, regardless of how tired or ill he might be. He was a deeply religious man in his interpretation of religion and was guided by the quotation: "Do unto others as you would have them do unto you."

He loved the outdoors, finding great joy and relaxation in riding and fishing. He was a past president of the Arizona Mounted Patrol and a District Vice Chairman of the Boy Scouts. Other affiliations were membership in the AMA, Arizona Medical Association, Maricopa County Medical Society, International Society of Fertility and Sterility, a Diplomat of the American Board of Obstetrics and Gynecology, the Southwest Obstetrical and Gynecology Society, the Mesa Optimist Club, Mesa Elks Lodge and the Masonic Lodge.

Dr. Rowley is survived by his mother, who lives in Marshalltown, his wife Barbara and five children: Marjorie, Thomas Jr., Robert, Richard and John.

We are proud to have been associated with this fine friend and colleague, and extend our sincere sympathy to all those who will miss him so deeply.

A. James Fillmore, M.D.



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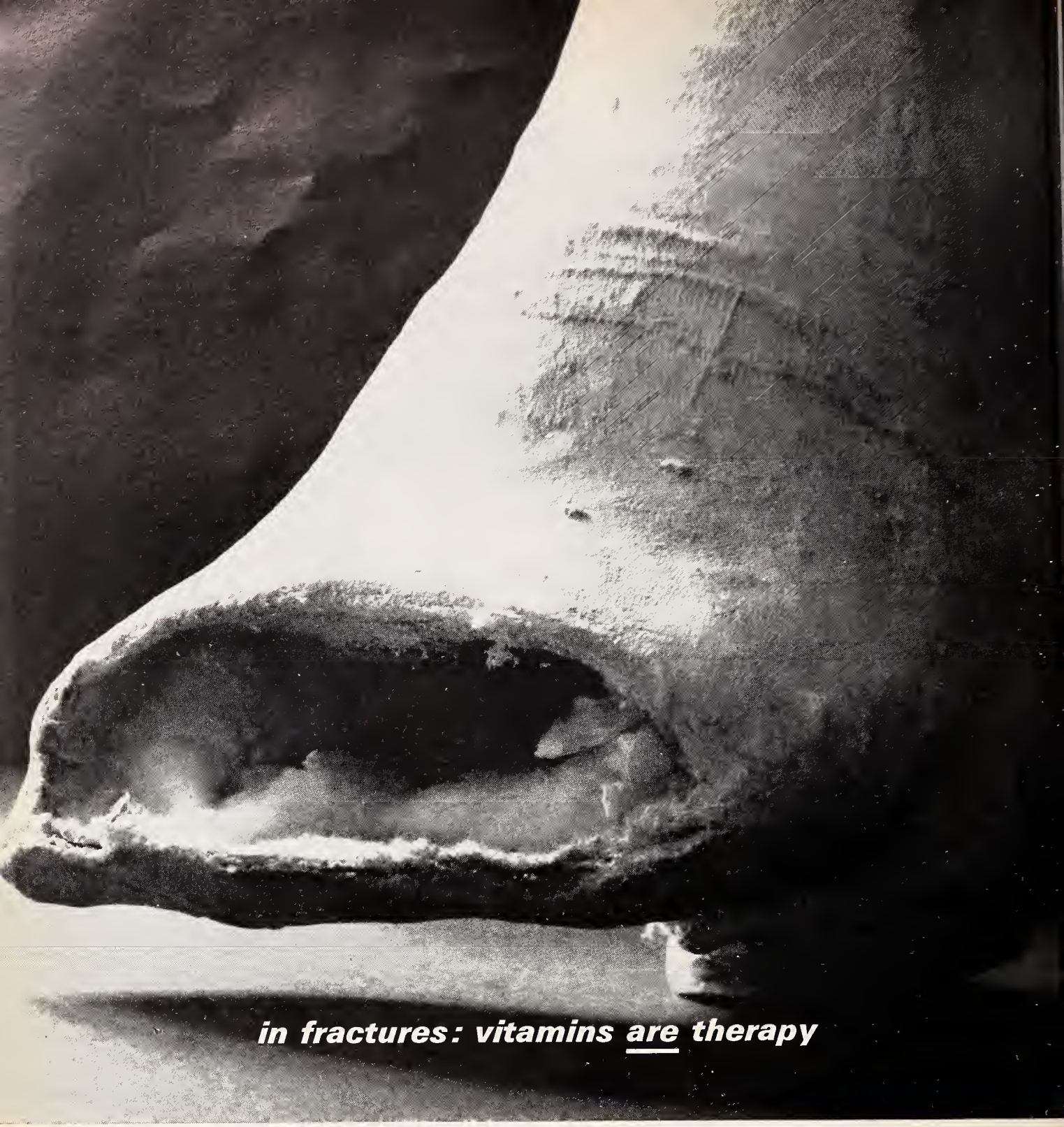
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To The Doctors of Arizona:



William B. Steen, M.D.

This administration was successfully launched at the Arizona Medical Association meeting in Tucson, May 1-4, at the Pioneer Hotel. We are thankful to our Scientific Assembly Committee, chairmaned by Dr. James Brady with a hard-working group of doctors, for an excellent program brought to us by many outstanding orators.

Two meetings of our House of Delegates efficiently handled the business of the Association.

Our ladies, through the Auxiliary, had business meetings and social adventures. They made plans to cooperate with the doctors in developing and bringing to fruition our "Operation Hometown". We are all grateful to Mrs. Mary Knight for an outstanding program the past year and look forward to a year ahead with Mrs. Clare L. Johnson, with many challenges in our national and state legislative programs.

Our Arizona Medical Association is grateful to all of its membership, its committees and the loyal, dedicated support of the central office for a very successful meeting.

NOW let's get down to business and start to look over our work for the year. Of top priority — heading the list of problems and projects is the new King-Anderson Bill HR-3920. Just a few words to speak of our last year's efforts. Under the able leadership of Dr. Leslie Smith, a National Legislative Speaker's Bureau, composed of professional and lay people, worked hard and effectively and brought the information regarding Medicare to the people of the State of Arizona. I am sure that this effort, a part of the big effort throughout the whole nation, helped to defeat the Medicare Bill.

We knew and realized that last year's victory was just a battle in a war. With this in mind, early in the year we began to revitalize the Speaker's Bureau of the Public Relations Committee, incorporating the 28 doctors who went through the fire of the successful Medicare fight last year. We wanted to have an effective permanent organization that would not only function for national emergencies and national issues, such as the 1963 Fedicare campaign which is confronting us at the present time, but also a continuing organization for the local and state problems.

This year, with the cooperation of the A.M.A., the strategy against the passage of HR-3920 has been planned specifically for each county medical society nationwide, with an intensive and a continuing program to offset the mounting pressure for the King-Anderson Bill in the 88th Congress.

The project is called "Operation Hometown," which is being launched throughout the states and throughout the communities in every county in the State of Arizona. The program is geared to bring the information about Fedicare or Medicare as a concoction of bureauracy, bad medicine and an unbalanced budget to the people of Arizona to stimulate them to have our congressional delegates vote against HR-3920 and SB-880. The program is to be organized at county or district level with a county or district chairman, who will have general supervision of the whole program, in all its stages and features, to enlist interest and active participation of the physicians and other groups, and six lieutenants to head committees covering the vital areas in this grass-root program. They are: County or District Speaker's Bureau, headed by its own chairman; Enlisting allies; Newspaper, radio and TV to reach the greatest number of people; Materials distribution; Congressional contacts to provide accurate information to all congressmen on the issue; and Letter writing, promoting correspondence with editors and congressmen. A highly successful meeting, attended by 64 doctors, doctors' wives, the staff of the Central Office, and speakers was held in Scottsdale, May 19th. An excellent program was addressed by:

DR. Ernest B. Howard, Chicago, Assistant Executive Vice President of A.M.A.; Robert A. Lange, Ph. D., Cleveland, Executive Secretary, Academy of Medicine of Cleveland, and Speech Consultant A.M.A.; and Frank K. Woolley, LL.B., Chicago, Field Repreesntative A.M.A.

We expect outstanding organizations in the six areas of the state to carry out our grass-roots program. The show is on the road, and we need the active cooperation and support of everyone in medicine in the state to make it successful.

William B. Steen, M.D.

For the Patient Over 50 with Digestive Distress

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Each tablet contains methscopolamine nitrate, 2 mg.; and pentobarbital (Warning: May be habit-forming), 8 mg.; plus KANULASE® (cellulase standardized to 9 mg.; combined with pepsin, N.F., 150 mg.; glutamic acid hydrochloride, 200 mg.; pancreatin, N.F., 500 mg.; ox bile extract, 100 mg.).

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Table I—Symptomatic Relief in 25 Patients
(totalling 100 symptoms)

	COMPLETE RELIEF	PARTIAL RELIEF	NO RELIEF	TOTAL SYMPTOMS
KANUMODIC	59	17	24	100
PLACEBO	1	33	61	95

In a second study, Kanumodic produced "highly gratifying symptomatic relief" in 46 of the 60 patients participating.

Tested in patients over 50*. . . The effectiveness of Kanumodic was matched against placebo response in a study involving twenty-five "over 50 patients" suffering from functional bowel distress. All patients complained of one or more symptoms. A follow-up study of 60 additional cases (average age, 55.3 years) was also conducted.

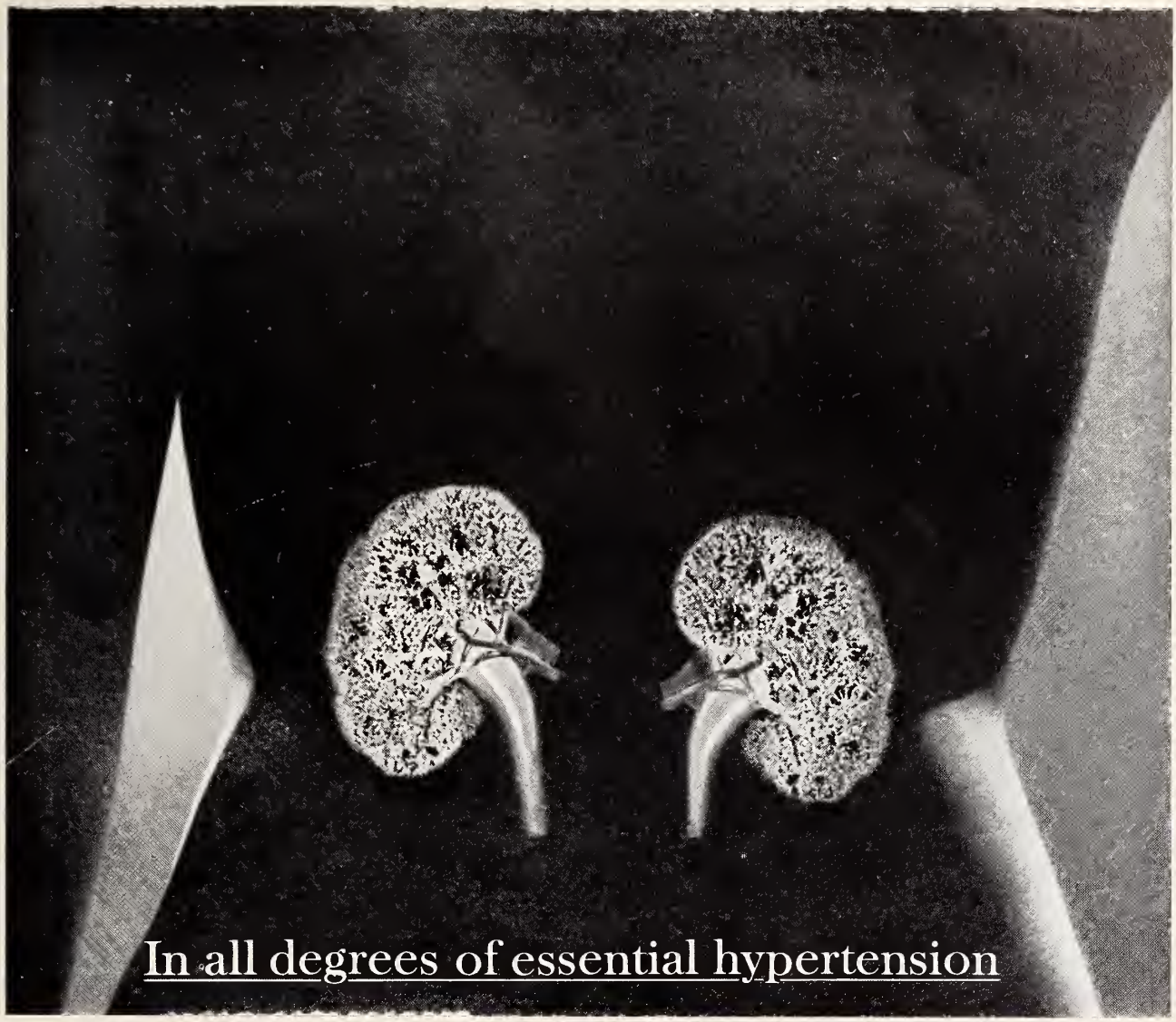
Proved in patients over 50* . . . The response noted in the pilot study is charted above.

*McHardy, G., and Balart, L.: Curr. Ther. Res. *4*:153, 1962.

Dosage: 1 or 2 tablets, swallowed whole with each meal.

Cautions: Federal law prohibits dispensing without prescription. Side effects such as dryness of mouth, blurring of vision, and urinary retention may occur occasionally with large doses. This product is contraindicated in the presence of glaucoma or prostatic hypertrophy. Glutamic acid hydrochloride is usually not given to patients with peptic ulcer.

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Dosage: Initially, 1 to 4 tablets daily preferably at mealtime. For maintenance, 1 or 2 tablets daily.

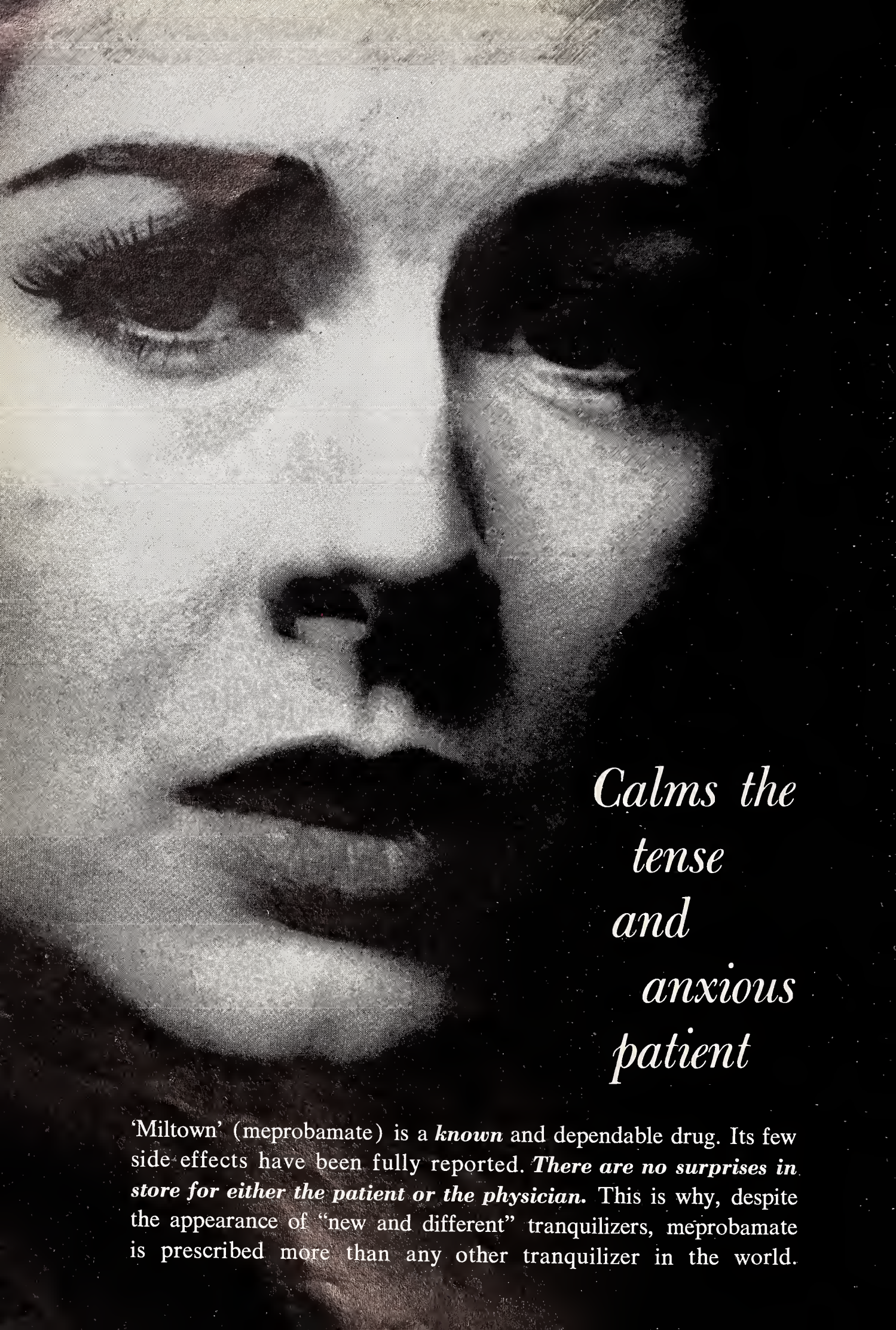
Side effects and precautions: Rauwolfia preparations may cause reversible extrapyramidal symptoms and emotional depression. Caution indicated in use with depression, suicidal tendencies, peptic ulcer. Minor side effects: diarrhea, weight gain, nausea, drowsiness. Bendroflumethiazide may cause reversible hyperuricemia and/or gout, unmask latent diabetes, increase glycosuria in diabetics. Caution indicated in use for patients on digitalis, with severely damaged kidneys, renal insufficiency, increasing azotemia, cirrhosis. Contraindicated in complete renal shutdown. Minor side effects: leg or abdominal cramps, pruritis, paresthesias, mild rashes.

Supply: Rautrax-N—capsule-shaped tablets providing 50 mg. Raudixin® [Rauwolfia serpentina whole root], 4 mg. Naturetin® [bendroflumethiazide], and 400 mg. potassium chloride. *Rautrax-N Modified*—50 mg. Raudixin [Rauwolfia serpentina whole root], 2 mg. Naturetin [bendroflumethiazide], and 400 mg. potassium chloride, in capsule-shaped tablets. For full information, see your Squibb Product Reference or Product Brief.

References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. *9*:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. *63*:545 (Apr.) 1960. (3) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. *10*:516 (June) 1962. (4) Hutchison, J. C.: Current Therap. Res. *4*:610 (Dec.) 1962. (5) Feldman, L. H.: North Carolina M. J.: *23*:248 (June) 1962.

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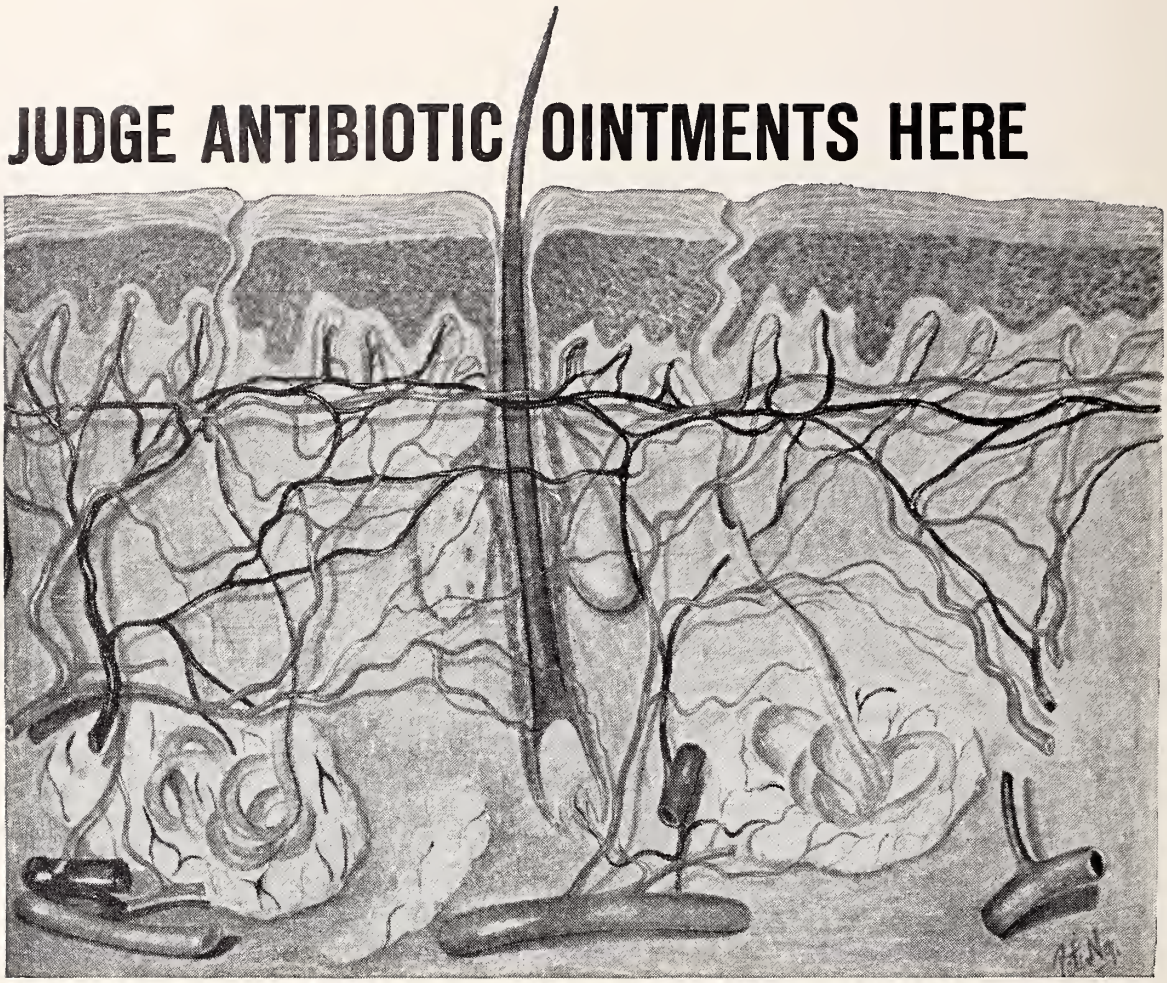
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"DO's" and "DON'Ts" For the Medical Witness

The AMA Medicolegal Symposium held in Miami, Florida, March 1963, prepared the following list of suggestions for the medical witness. We suggesst that you save them for future reference.

1. *Do* take the role of the medical witness seriously. The courtroom is a place in which practical men are engaged in the serious work of endeavoring to administer justice. The role of the medical witness is a key one in this endeavor.

2. *Don't* agree to or accept compensation for your services contingent upon the outcome of litigation. This practice is unethical and its disclosure would be apt to destroy the value of your testimony.

3. *Do* insist on preparation for your testimony in consultation with the attorney for the party who called you as a witness. He should advise you on what to expect on cross-examination. You have a right to consult with the party and his attorney about the case, so, don't be embarrassed if asked about such consultation.

4. *Don't* act as an advocate or partisan in the trial of the case. If the attorney for the party who calls you as a witness needs the advice or guidance of a doctor during the trial, let him employ another doctor. Disclosure of partisanship of a witness strongly tends to discredit his testimony.

5. *Do* be as thorough as is reasonably necessary under the circumstances in examining a party in preparation for trial. Exhaustion of all possible tests and procedures may not be required, but be prepared to justify any omissions.

6. *Don't* exaggerate. Any attempt to puff up your qualifications or to elaborate the extent of the examination you have made is apt to be exposed, to your embarrassment.

7. *Do* inform the attorney for the party who called you as a witness of all unfavorable information developed by your examination of the party, as well as the favorable information.

8. *Don't* try to bluff. If you don't know the answer to a question, don't guess. If you guess wrong, you may be falling into a trap.

9. *Do* be frank about financial arrangements with the party who called you as a witness, with respect to your compensation for both treatment given and services in connection with the litigation.

10. *Don't* regard it as an admission of ignorance to indicate that your opinion is not absolutely conclusive or that you don't know the answer to a particular question. Honesty may frequently require testimony of this nature.

11. *Do* answer all questions honestly and frankly. Any display of embarrassment or reluctance to answer will tend to discredit your testimony.

12. *Don't* use technical terminology which will not be understood by the jury, the attorneys, or the judge. If technical terms are unavoidable, explain them the best you can in the language of the layman.

14. *Don't* be smug. A jury is quite likely to react adversely to an attitude of this nature. A modest attiude on the part of a witness is apt to elicit a more favorable response. Leave it to the attorney to bring out your special qualifications.

15. *Do* be courteous no matter what the provocation. If a cross-examining attorney is discourteous to you, this is apt to win sympathy for you from the jury, provided that you don't descend to the same level.

16. *Don't* lose your temper. If a cross-examining attorney can provoke you to a display of anger or sarcasm, he has already substantially succeeded in discrediting your testimony.

17. *Do* pause briefly before answering a question asked on cross-examination, to give the other attorney an opportunity to object to the question if he so desires. Taking a moment for deliberation before answering a question does not indicate uncertainty or embarrassment.

18. *Don't* allow yourself to be forced into a "Yes" or "No" answer if a qualified answer is required. You have a right to explain or qualify your answer if that is necessary for a truthful answer.

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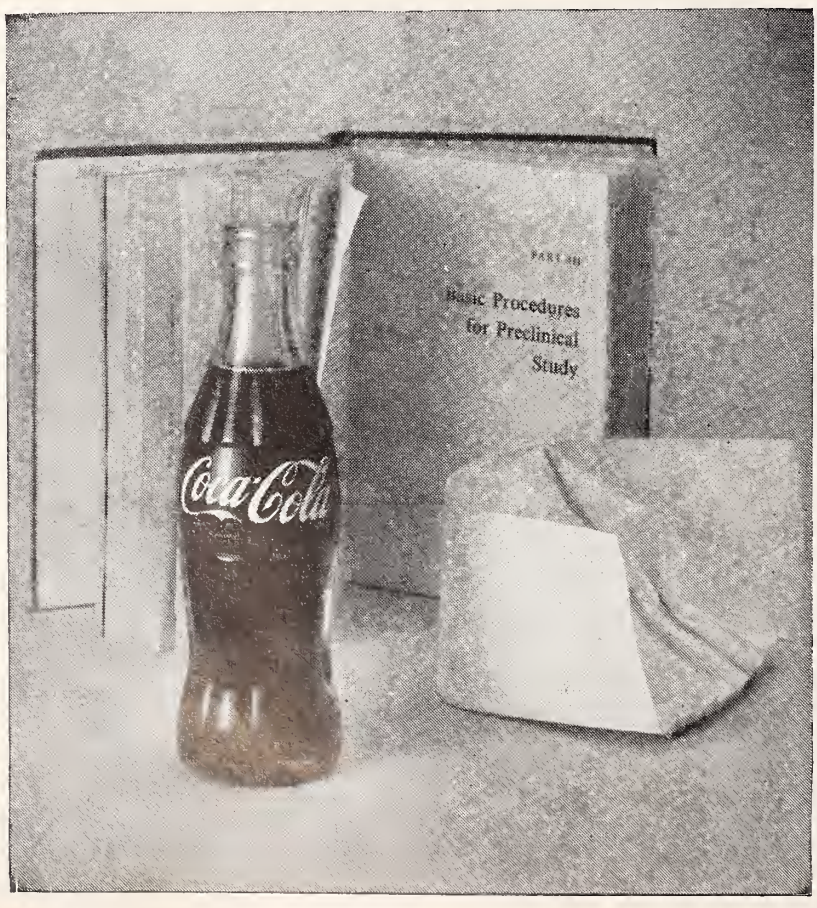
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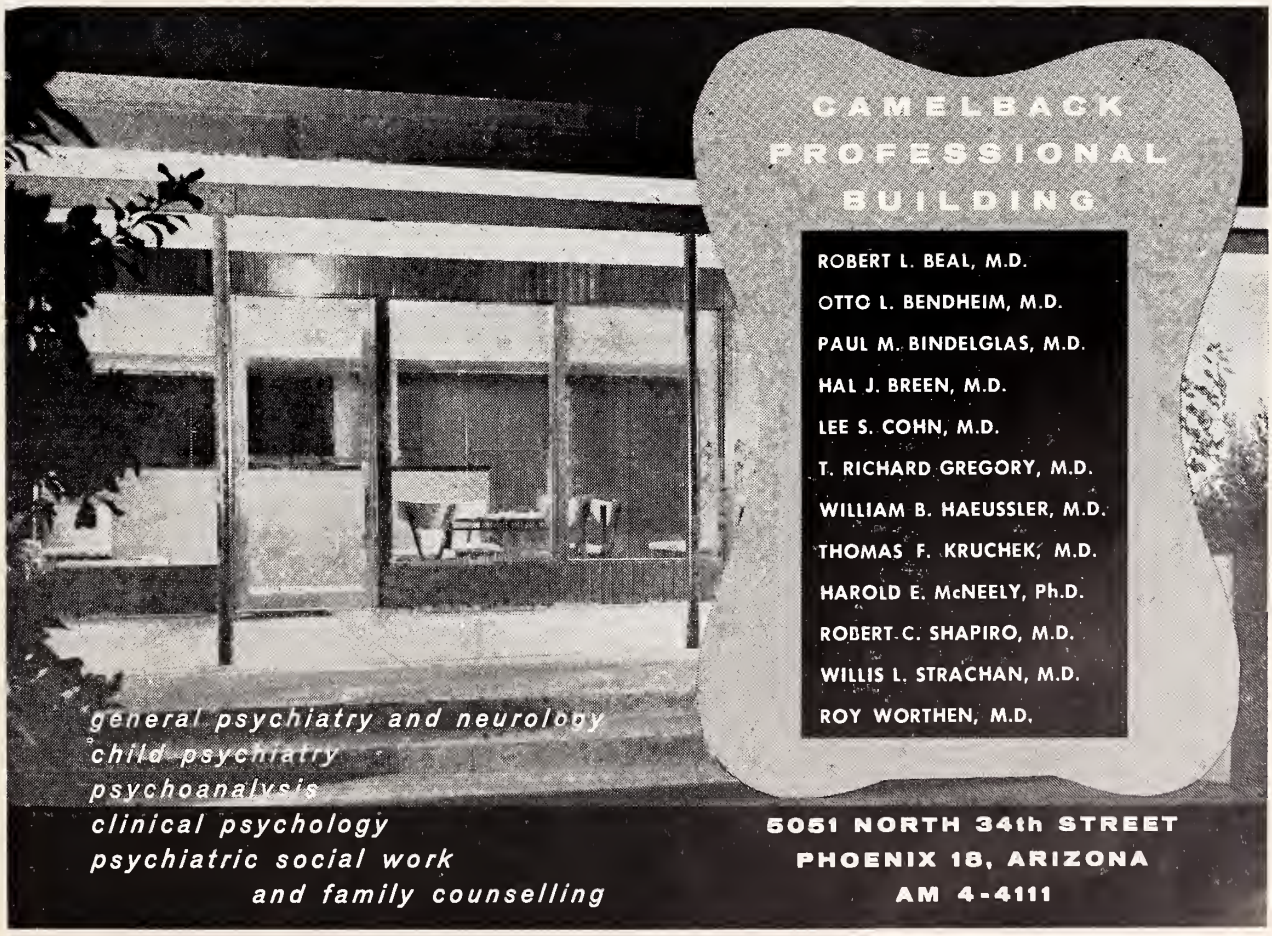
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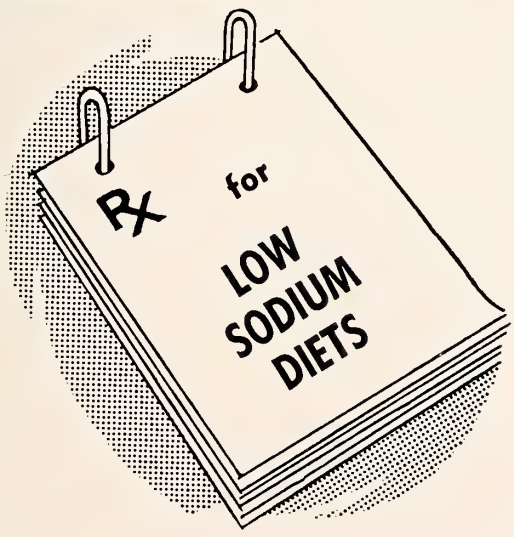
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YAVAPAI: Albert O. Daniels, M.D., Box 1311, Prescott; William R. Shepard, M.D., Secretary, 506 W. Gurley St., Prescott.

YUMA: William H. Lyle, M.D., President, 201 First Avenue, Yuma; Albert J. Ochsner, M.D., Secretary, 630 E. 26th Place, Yuma.

COMMITTEES — 1963-64

NOTE: The President, President-elect and Secretary are ex-officio members of all committees unless otherwise specified.

ARTICLES OF INCORPORATION & BY-LAWS COMMITTEE: Walter Brazie, M.D., Chairman (Kingman); Lindsay E. Beaton, M.D. (Tucson); Paul B. Jarrett, M.D. (Phoenix).

BENEVOLENT AND LOAN FUND COMMITTEE: Daniel T. Cloud, Jr., M.D., Chairman (Phoenix); Earl R. Baldwin, M.D. (Tucson); Donald K. Buffmire, M.D. (Phoenix); Arthur V. Dudley, Jr., M.D. (Tucson); Charles E. Henderson, M.D. (Phoenix).

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EXECUTIVE COMMITTEE: William B. Steen, M.D., Chairman, (Tucson); W. Albert Brewer, M.D. (Phoenix); Arthur V. Dudley, Jr., M.D. (Tucson); Charles E. Henderson, M.D. (Phoenix); James E. O'Hare, M.D. (Tucson).

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LEGISLATIVE COMMITTEE: Ben P. Frissell, M.D., Co-Chairman (Phoenix); Jesse D. Hamer, M.D., Co-Chairman (Phoenix); John S. Carlson, M.D. (Phoenix); Paul B. Jarrett, M.D. (Phoenix); W. Shaw McDaniel, M.D. (Phoenix); Derrill B. Manley, M.D. (Phoenix); James E. O'Hare, M.D. (Tucson); William B. Steen, M.D. (Tucson); George C. Truman, M.D. (Mesa).

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5433 East Eighth Street, Tucson, Arizona

Director (2 years) Mrs. William H. Lyle (Jill)
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2132 East Florence Drive, Tucson, Arizona

Bulletin Mrs. Elvie B. Jolley (Mira)
Post Office Box 919, Bisbee, Arizona

By-Laws Mrs. Jesse D. Hamer (Clarice)
1819 North 11th Avenue, Phoenix 7, Arizona

Chaplain Mrs. Jay L. Sitterley (Helen)
2319 North Lantern Lane, Flagstaff, Arizona

Community Service Mrs. Thomas Hughs (Penny)
43 East 14th Street, Tempe, Arizona

Sub-Committees:
Rural Health Mrs. Joseph B. DeLozier (Arleen)
Route 5, Box 634-X, Phoenix 21, Arizona

International Health Mrs. Frederick J. Hirsch (June)
5817 East 4th Street, Tucson, Arizona

Civil Defense Mrs. B. E. Lambrecht (Lila)
Post Office Box 1837, Miami, Arizona

Convention Mrs. John Schramel (Barbara)
6116 North 38th Place, Phoenix 18, Arizona

Finance Mrs. John Eisenbeiss (Lucile)
99 West Northview, Phoenix 21, Arizona

Health Careers Mrs. Boris Zemsky (Zora)
Route 8, Box 837, Tucson, Arizona

Historian Mrs. Melvin Phillips (Jean)
1001 Norris Road, Prescott, Arizona

Legislation Mrs. Everett Dean (Bobbie)
310 West State Avenue, Phoenix 21, Arizona

Mental Health Mrs. Robert F. Lorenzen (Joe Ann)
5336 East Rockridge Road, Phoenix 18, Arizona

Nominating Mrs. Frederick W. Knight (Mary)
618 Central Avenue, Safford, Arizona

Parliamentarian Mrs. Hiram Cochran (Mary)
35 North Camino Espanol, Tucson, Arizona

Publications (Newsletter) Mrs. Richard P. Timmons (Evelyn)
5302 North 69th Place, Scottsdale, Arizona

Safety Mrs. Fred Landeen (Rae)
4747 East Fort Lowell Road, Tucson, Arizona

Student Nurse Loan Fund Mrs. Howard M. Purcell (Pauline)
100 East Ocotillo Road, Phoenix 12, Arizona

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Gila County Mrs. Ellis L. Pollock
Post Office Box 1745, Miami, Arizona

Maricopa County Mrs. George Scharf
6301 North 20th Street, Phoenix 16, Arizona

Pima County Mrs. Hubert Estes
6911 Soyaluna Place, Tucson, Arizona

Yavapai County Mrs. Richard Hardenbrook
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Yuma County Mrs. Charles Mattheus
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PIMA COUNTY REPRESENTATIVE
RONALD DEITRICH
136 North Stone Avenue MAin 3-0583

BOARD OF DIRECTORS MEETING

JUNE 9, 1963

Meeting of the Board of Directors of The Arizona Medical Association, Inc., held Sunday, June 9, 1963, in the French Quarter of the Safari Hotel, Scottsdale, Arizona, convened at 10:15 A.M., William B. Steen, M.D., President, Acting Chairman, presiding.

The following items on the agenda were those that seemed of greatest general interest to members of the Association.

BENEVOLENT AND LOAN FUND COMMITTEE

Daniel T. Cloud, Jr., M.D., newly appointed chairman of the Benevolent and Loan Fund Committee, was given the floor for the purpose of presenting the following proposed program:

You will recall that at the recent state meeting there was a resolution introduced calling for the establishment of a medical student Loan Program for the State of Arizona with the Valley Bank. This Loan Program is patterned after the present program that has been established by the AMA in Chicago. This is the American Medical Association Education and Research Program and this is a guaranteed fund program in which the bank will make available or loan $12.50 for each $1.00 that is maintained in the guarantee fund by the Association. Basically the plan is this. Students eligible for loans under this plan will be screened and recommended by the committee, the Benevolent and Loan Fund Committee, and they will be screened on the basis of financial means and scholastic ability and any other factors which the committee may consider desirable and necessary for making them good candidates for the medical profession. They will, of course, require an acceptance in medical school before they can be finally considered. The loans will be limited to some $1,500.00 annually and up to a total of $10,000.00 may be borrowed over a period of 7 years. The total educational loans — all sources, that is, sources in addition to the bank loans, shall not exceed $15,000.00. In other words, if $10,000.00 is borrowed from the bank, an additional amount up to $5,000.00 may be borrowed from other sources, but no more than that. The 7-year period is to provide for 4 years of medical education plus the year of internship plus an additional two years, and the loan is to be made on the basis of interim notes at each advance. These notes will mature on the first day of the fifth month following completion of training and at that time, the bank will make available to the trainee their existing loan program which will pay off immediately to the Benevolent and Loan Fund, and the man will be launched on his own with the bank at that time, and he may make arrangements to pay off the total amount on an installment basis extending over a period of an additional 10 years. The interest rate on the loan, that is the educational loan, will be 6% simple interest, not compounded on the interim notes, and this may be altered to some extent by the bank provided there are any important changes in the money market. This makes available for the students a means of financing medical education without subsidy. It provides loans at a low cost, lower than would be available through normal channels. It provides liberal periods of time for repayment and with quite a degree of flexibility so that individual plans can be met for the students; and it does allow the Association to make available a larger amount of money for loans than has previously been true because it is only required that the Association keep $1.00 on deposit for each $12.50 available as loanable funds.

Doctor Cloud reported that it was the unanimous action of the Benevolent and Loan Fund Committee at an earlier meeting held this morning that it recommend to the Board of Directors of ArMA that it authorize the Association's legal counsel to draw up the necessary papers, authorizing the VNB to invest any funds of the Benevolent and Loan Fund Program in mutual funds, for the purposes of adding to the Fund; further, that the Committee recommend to the Board of Directors of ArMA that it adopt the program as outlined by the VNB, approved by the Committee, for the proposed Loan Fund to (Arizona) medical students, and that it direct its legal counsel to immediately effect a Trust Agreement for the program.

The Chairman stated that with the development of this new Medical Student Loan Program, of course, individual contributions to enlarge the Association Fund will be most welcome and it is the hope that the membership will respond generously. Such contributions will be in addition to those commitments made in support of the AMA-ERF program, similar to the one being proposed this morning for activation by this Association.

COMMITTEE MEMBERSHIP APPOINTMENTS

STANDING COMMITTEES:

Benevolent and Loan Fund Committee

Doctor Daniel T. Cloud, Jr., (Phoenix), appointed a member of this committee for the term 1963-66 and designated Chairman.

Grievance Committee

Doctors Miguel A. Carreras (Tucson), Richard E. H. Duisberg (Phoenix) and Leo L. Lewis (Winslow) were appointed members of this committee for the term 1963-66. Doctor Clarence E. Yount, Jr. (Prescott) Past President, assumes the Chairmanship for 1963-64 (Specified).

History and Obituaries Committee

Doctor Walter Brazie (Kingman) appointed a member of this committee for the term 1963-66.

Industrial Relations Committee

Doctor John A. Eisenbeiss (Phoenix) and Doctor Christopher A. Guarino (Tucson) appointed members of this committee for the term 1963-66. Doctor Oscar W. Friske (Youngtown) was designated Chairman.

This committee in annual report covering the fiscal year 1962-63 recommended to this Board of Directors that the Psychiatric Advisory Board of the Industrial Commission of Arizona should be consulted as a permanent group and as a subcommittee of the Medical Advisory Board of the Industrial Commission (Industrial Relations Committee). This Psychiatric Board should be

presided over by the phychiatrist member of the Industrial Relations Committee who, as is known, is rotated every threc years. The other three members should be rotated every three years but at thc present time the existing membership should be rotated as follows: The Chairman should remain a member only during the tenurial office as member of the Industrial Relations Committee; one other present member should be appointed for a period of three ycars, another onc for two, and another one for one year, so that replacement appointments are made eevry three years for the members other than the Chairman. In this fashion, the total membership of four is being provided for on a permanent basis. Also in the same category, namely as a subcommittee of the Medical Advisory Board (Industrial Relations Committee) a Board of Cardiology Consultants should be appointed, consisting of three members, to serve at the request of the Industrial Commission for the purpose of evaluating difficult or controversial cases involving the relationship of heart disease or trauma to industrial injury. The provision for rotation, if this is desired, is left to the discretion of the Board of Directors.

It was moved by Doctor Beaton, seconded by Doctor Brewer and unanimously carried that implementation of the recommendations of the Industrial Relations Committee be authorized.

In the instance of the Psychiatric Advisory Board it was expressed that technically this would be an ad hoc committee, the President bcing authorized to make the appointment (s).

In the instance of the Board of Cardiology Consultants it is recognized that such appointment must necessarily be in the form of a recommendation subject to the acceptance and approval thereof by the Arizona Industrial Commission with reference to compensation for such services rendered. The feeling was expressed that it should be on the same level as are the members of the Industrial Relations Committee serving as advisory to the Arizona Industrial Commission.

It was moved by Doctor Beaton, seconded by Doctor Price and unanimously carried that as regards the Psychiatric Advisory Board membership, Doctor Charles P. Neumann, currently a member of the Industrial Relations Committee be designated Chairman of this subcommittee and that Doctor Richard E. H. Duisberg (Phoenix) be appointed a member of the subcommittee for a term of one year; Doctor William B. McGrath (Phoenix) be appointed for a term of two years; and Doctor Boris Zemsky (Tucson) be appointed for a term of three years.

Regarding the recommended appointment of a Board of Cardiology Consultants it was determined to confer with the Arizona Industrial Commission in this regard and following its expressed consent to the establishment of such a body, that this Board of Directors later give considcration to the membership composite and appointment thereof.

Legislative Committee

Doctor James E. O'Hare (Tucson) currently Vice-President of the Assoeiation, resigned as a member of this committee which resignation was accepted. Doctor Paul J. Matte, Jr. (Phoenix) was appointed to fill the unexpired term 1963-64; Doctor Jesse D. Hamer (Phoenix) member of the Committee is designated Chairman 1963-64; Doctors John S. Carlson (Phoenix) and Paul B. Jarrett (Phoenix) were re-appointed members; Doctors Walter Brazie (Kingman), Bruce N. Curtils (Safford), and Philip G. Derickson (Tucson) were appointed members each for the term 1963-66.

Medical Economics Committee

Doctor Melvin W. Phillips (Prescott) was appointed a member of this committee for the term 1963-65; and Doctors James F. Blnte, Jr. (Tucson) and Robert H. Bullington (Phoenix) were likewise appointed members of this committee each for the term 1963-66. Doctor Ian M. Chesser (Tucson) a member of this committee was designated Chairman for the fiscal year 1963-64.

Medico-Legal Committee

Doctors Harold E. Kosanke (Tucson), William B. McGrath (Phoenix) and Donald F. Schaller (Phoenix) were appointed members of this committee for the term 1963-66. Doctor Jack E. Brooks (Phoenix), member of the committee, was designated Chairman for the fiscal year 1963-64.

Professional Committee

Doctor Otto L. Bendheim (Phoenix) was re-appointed a member of this committee for the term 1963-66. Doctors Roger W. Cole (Tucson), Harold W. Kohl, Jr. (Tucson) and Karl L. Meyer (Nogales) were appointed members of this committee each for the term 1963-66. Doctor Robert B. Leonard (Phoenix) was designated Chairman for the fiscal year 1963-64.

Professional Liaison Committee

Doctor Albert G. Wagner (Phoenix) was re-appointed member of this committee and Doctor Clare W. Johnson (Phoenix) appointed a member each for the term 1963-66. Doctor Hugh H. Smith (Tucson), a member of the committee, designated Chairman and Doctor Clare W. Johnson (Phoenix) designated Chairman of the subcommittee to the Woman's Auxiliary each for the fiscal year 1963-64.

Public Relations Committee

Doctors James E. O'Hare (Tucson) and Leo L. Tuveson (Phoenix) were re-appointed members of this Committee for the term 1963-66, Doctor O'Hare being designated Chairman for the fiscal year 1963-64; Doctors C. Herbert Fredell (Flagstaff), Robert V. Horan (Miami), and William H. Lyle (Yuma) were appointed members of this Committee for the term 1963-66.

Publishing Committee

Doetor John R. Green (Phoenix) re-appointed member of this Committee for the term 1963-66; Doctor Preston J. Taylor (Tucson) appointed member for the term 1963-66; and Doctor Robert F. Lorenzen (Phoenix) reeently elected Editor-in-Chief will serve as Chairman of this Committee for the fiscal year 1963-64 (Specified).

Scientific Assembly Committee

Doctors John F. Currin (Flagstaff), T. Richard Gregory (Phoenix), Ralph A. Jackson, Jr. (Tucson), Frederick W. Knight (Safford), Charles W. McMoran (Sierra Vista), and Melvin W. Phillips (Prescott) were appointed members of this Committee for the term 1963-66. Doctors W. Albert Brewer, President-elect (Phoenix) designated Chairman and James E. O'Hare, Vice-President (Tucson)

are also members of this Committee (Specified).

AD HOC COMMITTEES

Orderly Alignment of Blue Shield

Resolution No. 17 considered by the House of Delegates in recent annual meeting provides for the appointment of an ad hoc committee to study and to make recommendations for the orderly alignment of Blue Shield to include payment for Pathology, Radiology and Anesthesiology services of patients. On recommendation of the President the following committee membership composite re-appointed was approved: R. Lee Foster, M.D. (Phoenix), designated Chairman; Richard S. Armstrong, M.D. (Tucson); Walter T. Hileman, M.D. (Tucson); Paul B. Jarrett, M.D. (Phoenix); George Scharf, M.D. (Phoenix); and James G. Wood, Jr., M.D. (Flagstaff).

Appraisal of Arizona Blue Shield

Resolution No. 17, considered by the House of Delegates in recent annual meeting provides for the appointment of an ad hoc committee for the appraisal of Arizona Blue Shield, to negotiate appropriate co-operative measures with Blue Cross officials and a report quarterly to the ArMA Board of Directors of the committee findings and recommendations. On recommendation of the President, the following committee membership composite was approved: Ian M. Chesser, M.D. (Tucson), designated Chairman; Howard W. Finke, M.D. (Superior); Ben P. Frissell, M.D. (Phoenix); Donald A. Polson, M.D. (Phoenix); Arthur C. Stevenson, M.D. (Phoenix); Ashton B. Taylor, M.D. (Phoenix); Robert W. Weber, M.D. (Tucson); Woodson C. Young, M.D. (Phoenix); and Reginald J. M. Zeluff, M.D. (Phoenix).

Arizona Territorial Medicine Publication

The House of Delegates of this Association in annual meeting held May 1, 1963, authorized its Board of Directors to appoint an ad hoc committee on Arizona Territorial Medicine Publication to proceed with the writing and publication of a book to be titled "Arizona Medicine". On recommendation of the President, the following committee membership composite was approved: W. Albert Brewer, M.D. (Phoenix), designated Chairman; Allen B. Carter, M.D. (Tucson); John W. Kennedy, M.D. (Phoenix); W. R. Manning, M.D. (Tucson); Darwin W. Neubauer, M.D. (Tucson); and Roland F. Schoen, M.D. (Casa Grande). In addition the following individuals were recommended and appointed as advisory members to this ad hoc committee: Mrs. Weir Stevens (Ray) and Mrs. Dorothy McNamee (Tucson).

AID TO TOTALLY AND PERMANENTLY DISABLED

DR. STEEN: You, of course, are familiar with the program involving Aid to the Totally and Permanently Disabled, administered by the Arizona State Welfare Department. It has been the subject of discussion at previous meetings of this Board. You will further recall that Doctor Jesse D. Hamer has contributed much toward this program in re-evaluating previously classified "totally and permanently disabled" persons eligible for such benefit. It has been suggested that County Appeal Committees be established in the event of dispute over an attending physicians' findings; further, that a similar committee be established on the State level similarly acting as an appeal body should there develop further dispute on the County level following review of cases by such local committees.

HOUSE OF DELEGATES—RESOLUTIONS

No. 10 — Hospital Developments in Arizona

The Honorable Paul Fannin, Governor of the State of Arizona, acknowledges receipt of a copy of Resolution No. 10 adopted by the House of Delegates of this Association, May 3, 1963, referable to Hospital Developments in Arizona, commending the Association for its position in this regard.

The Arizona Corporation Commission acknowledges receipt of copy of this Resolution No. 10, expressing gratefulness in the stand taken by this Association in this important matter. Attention is directed to Senate Bill 56 introduced in the last Arizona Legislature, cleared in the Senate, however failing of passage in the House. Plans are being made to re-introduce the Bill at the second regular session of the Arizona Legislature to convene January next, designed to deal with the problem. Support of the Association to this end is solicited.

Received. No further action indicated at this time.

The President and Board of Directors of this Association in line with this resolution were directed to maintain close surveillance on hospital developments in Arizona, and to take any action they may consider appropriate in accordance with the contents of the resolutions.

SCIENTIFIC ASSEMBLY COMMITTEE

Attention was directed to the need for determining the site locations for the 73rd (1964), 74th (1965), and 75th (1966) Annual Meetings of this Association as previously directed by the House of Delegates. Locations were reviewed, individual hotel facilities evaluated and the Board of Directors determined upon the following locations:

> 1964 — San Marcos Hotel, Chandler; 1965 — Pioneer Hotel, Tucson; and 1966—Safari Hotel, Scottsdale (Providing adequate exhibit area is provided).

COMMUNICATIONS

Pima County Medical Society

The Pima County Medical Society by letter dated May 14, 1963, requests an opinion of this Board of Directors as to policy to be pursued in the instance of a Society member invited to present a lecture on a specialty subject before Osteopathic Society meetings. It was regularly moved by Doctor Beaton, seconded by Doctor Dysterheft and unanimously carried that the Professional Liaison Committee be requested to review the subject presented by the Pima County Medical Society and possibly develop an approach or program or recommendation(s) which might serve as a guide for conduct in these situations, to be presented for the further consideration and action of the Board of Directors.

Winnebago County Medical Society

The Winnebago County Medical Society of Rockford, Illinois, by resolution endorses the action of Rockford College in opposing Federal Aid to Education; and by further resolution requests that the Illinois State Medical Society declare itself opposed to Senate Bill 911 (formerly HR-12), the Health Professions Educational Assistance Act which provides $175 million for construction and rehabilitation of medical and allied schools, previ-

ously endorsed by the American Medical Association; further urging the ISMS to endeavor to induce the AMA to reverse its previous stand.

It was moved by Doctor Dudley, and seconded by Doctor Dysterheft that this Board of Directors instruct its delegates to AMA to support such resolution as introduced in the House of Delegates and express opposition to Federal fiscal support of construction of medical schools. This motion was not carried.

It was moved by Doctor Beaton, seconded by Doctor Taylor and unanimously carried that this Board of Directors go on record in support of the AMA's position as relates to S-911.

Nebraska State Medical Association

The Nebraska State Medical Association presented copies of two resolutions adopted by its House of Delegates May 15, 1963; dealing with the Dryer Report, requesting that the action of the AMA House of Delegates concerning the document "Lifetime Learning for Physicians" as a guide for a program for continuing education be critically reconsidered; and second, in keeping with medicine's traditional concern for the continued progress of medical science, opposed unnecessary Federal regulation of the care and use of animals for medical research as proposed in S-533, HR-4620 and HR-4856.

Louisiana State Medical Society

The Louisiana State Medical Society submits a resolution approved by its House of Delegates May 8, 1963, requesting that the action of the American Medical Association House of Delegates concerning the document "Lifetime Learning for Physicians" as a guide for a national program of continuing education be reconsidered; and that said AMA House of Delegates be requested to submit the "Dryer Report" to a Reference Committee for study and determination of its logical roll in postgraduate education together with facilities and efforts existing in American medicine today.

OTHER BUSINESS

ARMPAC

The Board of Directors of this Association in meeting held February 10, 1963, appointed members to serve on the Board of Directors of ARMPAC for a term of one year or until such time as their successors are appointed and have accepted office. At a meeting of the ArMA Board held May 1, 1963, it was reported that the appointees had accepted the assignment. The President reports that William F. Holsey, M.D., and Maxwell R. Palmer, M.D., both members of Pima County Medical Society, have submitted resignations, creating two vacancies on the ARMPAC Board of Directors.

Doctor Steen reviewed in detail the expressions of many members of the Association as to the operation of ARMPAC and political action activities. He outlined his concept of what it should and should not be if continued as an operation in Arizona under the auspices of this Association. Lengthy discussion ensued expressing individual views both for and against political action activities.

It was determined for the present to continue ARMPAC in Arizona; however, its conduct and activity is to be kept under close surveillance.

It was moved by Doctor Beaton, seconded by Doctor Dysterheft and unanimously carried that W. R. Manning, M.D., and John R. Schwartzmann, M.D., both of Tucson and members of Pima County Medical Society be appointed members of the ARMPAC Board of Directors, subject to their acceptance of this assignment, to fill the unexpired terms of office of Doctors Holsey and Palmer, their resignations being accepted.

Counsel was requested to review the legal aspects of the operation of ARMPAC as it relates to ArMA and reference was made to an opinion rendered under date of November 5, 1962, particularly referring to the tax aspects. It was indicated that Mr. Clarence J. Duncan has been employed by ARMPAC as its Counsel and under date of June 5, 1963, there was forwarded to Mr. Duncan at his request a resume of the actions of this ArMA Board to date, together with copies of a Constitution and By-Laws, acceptable to the Association and legal opinions of both ARMPAC and ArMA relating to the subject.

MEETING ADJOURNED AT 4:05 P.M.

Charles E. Henderson, M.D.
Secretary



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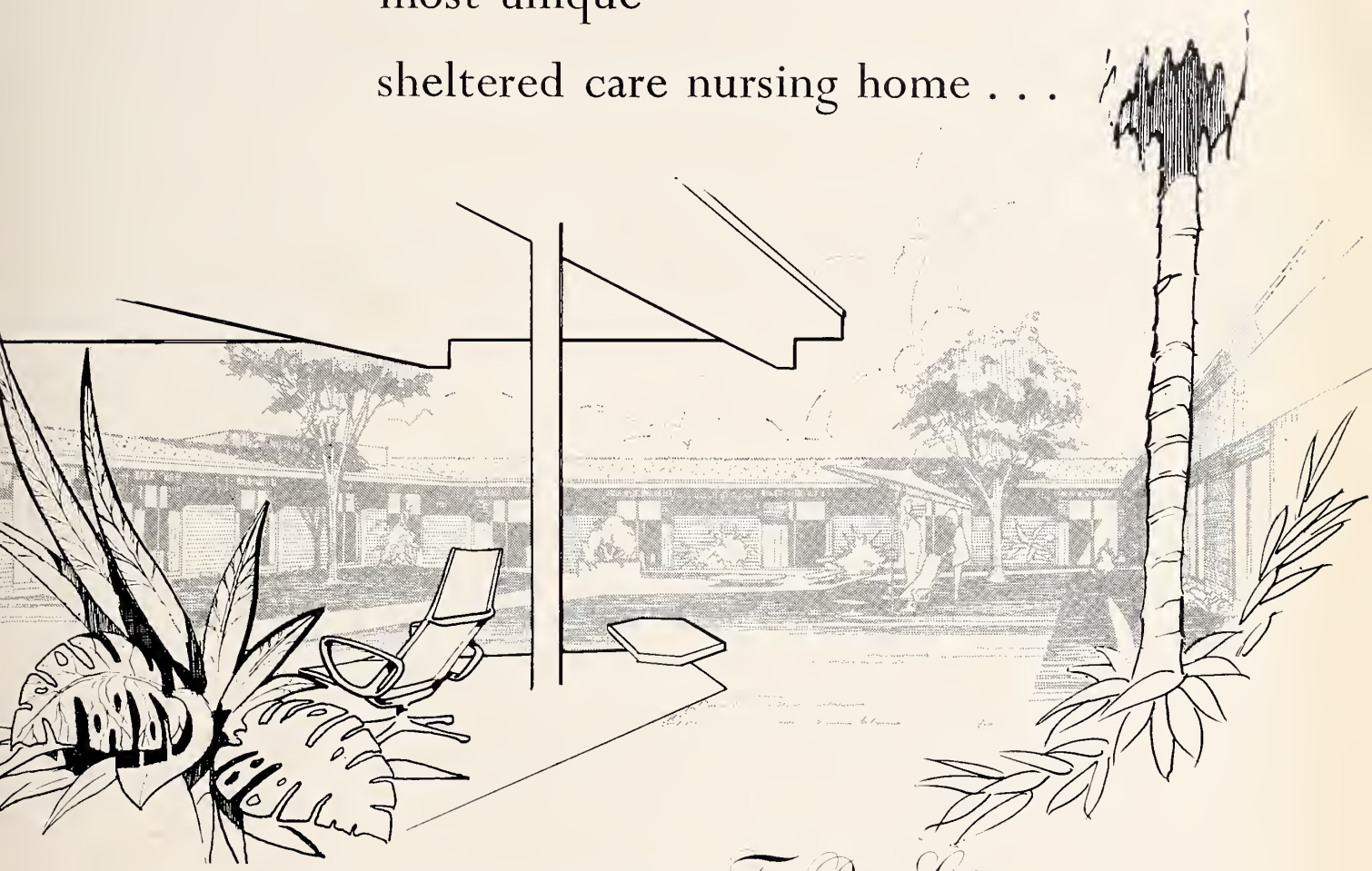
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References: 1. A.M.A. Council on Dru J.A.M.A. 183:469 (Feb. 9) 1963. 2. Gruenb F.: Curr. Ther. Res. 2:1 (Jan.) 1960.



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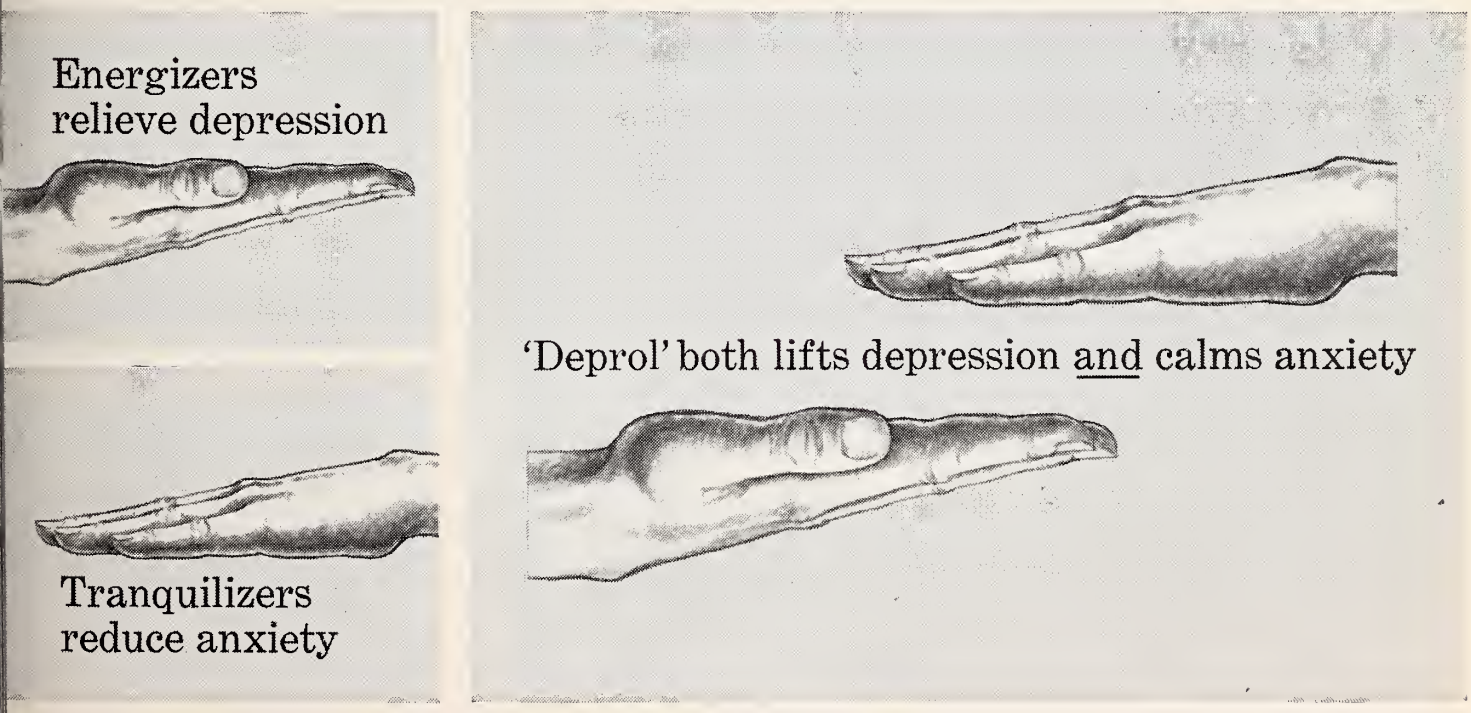
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Sarcomas of the Brain

James W. Kernohan, M.D.

This incomparable series of 241 sarcomas of the brain emphasizes the importance to the patient of accurate pathologic diagnosis in tumors in general and specifically in tumors of the brain. We welcome Dr. Kernohan to Arizona following forty years of remarkable productivity at Mayo Clinic and Foundation and anticipate that his best work is yet to come as chairman of the division of neuropathy of the Barrow Neurological Institute of St. Joseph's Hospital.

THIS lecture is an abbreviation of the Carl Weller Lecture* which I had the honor of delivering at the invitation of the Michigan Pathologic Society on December 9, last year.

Sarcomas of the brain may seem to be a rare neoplasm, but they actually represent 3 per cent of all brain tumors, and brain tumors are as frequent as most carcinomas of the breast or of the various organs in the abdomen.

The study revealed that in most respects sarcomas of the brain were similar to sarcomas of other parts of the body. On this account the morphologic basis was used for the classification of sarcomas of the brain, but malignant meningiomas, angiomas or metastatic tumors were not included. Two hundred forty-one sarcomas of the brain were available for study. Some were attached to the meninges; some were entirely within the brain and a few were limited to, and diffusely involved, the meninges.

Fibrosarcomas

As in other areas of the body fibrosarcomas are the most common type of sarcoma. There were 96 such tumors (39.8 per cent) in the 241 cases. At operation these tumors simulated either meningiomas or metastatic tumors. The microscopic study as a rule settled the problem fairly readily, and it was found that reticulin was abundant in all of this group of tumors even in the most malignant ones.

The fibrosarcomas varied in malignancy from very slowly growing, slightly malignant lesions to highly malignant ones. Several subgroups were included, such as fibromyxosarcomas, fibrochondrosarcomas, neoplasms containing osteoid tissue, and even a mesenchymal chondrosarcoma. As a rule, there was a fair correlation between the grade of malignancy and the prognosis, although this was modified in some to a great degree by the use of irradiation, which seemed to be of considerable help in a fair number of cases.

Giant Cell Sarcomas

One group of tumors that was intriguing contained huge or monster giant cells. There has been some doubt whether this group belongs to

Barrow Neurological Institute of St. Joseph's Hospital, Phoenix, Arizona.

Read at the meeting of the Arizona State Medical Association, Scottsdale, Arizona, April 24 to 28, 1962.

*Being published by Charles C. Thomas, as part of the American Lecture Series (J. W. Kernohan and Alfred Uihlein: Sarcomas of the Brain).

the sarcomas or the malignant astrocytomas (glioblastoma multiforme). On study transitions were found between the ordinary fibrosarcomas and tumors made up almost exclusively of huge giant cells. Thirty-five giant cell sarcomas (14.5 per cent of the sarcomas) were available for study. Some were attached to the dura mater; some were entirely within the brain, but most impinged on the meninges. They were invariably sharply circumscribed but not encapsulated. Necrosis though variable in amount was common. These sarcomas with monster giant cells were, as a rule, firmer than gliomas and simulated metastatic masses.

Microscopically, this group of lesions was characterized by numerous bizarre giant cells which tended to fuse with each other. Reticulin was present throughout the tumor, and many nuclei contained bodies that resembled inclusion bodies. The cytoplasm often had incorporated other cells such as lymphocytes. The cells had a close affinity to the walls of the blood vessels. The prognosis with one exception was bad and the tumors did not respond to irradiation.

Circumscribed Sarcomas of Cerebellum

Another interesting group of tumors in the cerebellum, which I consider a variant of fibrosarcoma, has been called "circumscribed arachnoidal sarcomas" of the cerebullum. They simulate medulloblastomas, but they are found more frequently in the cerebellar hemispheres than in the vermis. They occurred as often in adults as in children, and they were fairly well circumscribed on the surface, but usually invaded the cerebullum in their deeper points. They were more readily enucleable than medulloblastomas and responded more readily to irradiation. Thus the prognosis is better than for the other fibrosarcomas, and several patients are alive from 3½ years to more than 20 years after operation and x-ray therapy. Thirty-three such tumors were available for study. Microscopic study showed that the cells were larger than those of the medulloblastoma. These tumors had abundant reticulin and some cells were bipolar and others stellate in appearance.

Meningeal Sarcomatosis

The nature of diffuse sarcomas is based on the type of cell found in the meninges. There are two types of cells: connective tissue and reticuloendothelial-like cells. Thus we have fibrosarcomas, reticuloendothelial cell sarcomas and also an admixture of these. Ten such tumors were available from the Mayo Clinic files and two were submitted to me for study. Nine were reticuloendothelial cell sarcomas; two were fibrosarcomas and one was an admixture of the two. Most were in young people, and all were found at necropsy. Because of their nature and distribution, the prognosis is poor and their diagnosis and treatment are difficult or impossible at present.

Hemangiopericytomas

In recent years a group of tumors has been recognized and described by Stout and Murray[1] as hemangiopericytomas. These tumors have been found in many locations in the body, and 25 were encountered among the 241 sarcomas of the brain studied. Some were in the brain substance, but most impinged on the meninges. These tumors simulate meningiomas, and probably most have been classified as an angiomatous type of meningioma in the past as relatively few have been described in the brain. They are firm and vascular and have a great tendency to recur. Most are of a low grade of malignancy, but all are cellular and with varying numbers of mitotic figures but little or no pleomorphism, and there is abundant reticulin. Some are malignant, and three probably had metastasized to other parts of the body. We do not have enough information to state whether irradiation has any beneficial effect on them. All tend to recur, sometimes after many years, and repeated recurrences were noted.

Tumors of the Reticuloendothelial System

One of the most interesting groups of sarcomas of the brain are those belonging to the reticuloendothelial system. Forty tumors of this type were available for this study, and several more have been examined since this study was completed. They may occur at any age and in almost all areas of the brain. Most of them appear as solitary masses, but in several cases two or more tumors were found and in at least two, the brain was diffusely involved. These neoplasms are invariably soft, indistinctly outlined and grayish in color. The preoperative history usually is very brief. In at least five cases, there was a history of what seemed to be an antecedent infection suggesting the diagnosis of viral encephalitis.

On microscopic examination, they are similar

to reticuloendothelial cell sarcomas or Hodgkin's sarcomas of other organs. In some tumors, some cells had an affinity for silver similar to that of the microglial cells. The argentophil cells were not uniformly distributed throughout the tumors.

In this group, the identification of the nature of the tumor cells is important because there seems to be a beneficial effect from the use of roentgen therapy and several apparent cures have been effected by the combination of surgery followed by irradiation.

Gliomas and Sarcomas

In the earlier years of this century, the term "gliosarcoma" was a common one, but virtually disappeared after Bailey and Cushing[2] published their classification of gliomas. Recently, the combination of these two tumors has been recognized, and we had seven such tumors. They usually represent a combination of fibrosarcoma and astrocytoma, and the prognosis depends, for the most part, on the grade of malignancy of the astrocytomatous portion of the tumor.

Comment

The recognition of sarcomas of the brain is primarily the problem of the pathologist, but the diagnosis is important to the patient because this group of tumors is more responsive to treatment than any similar group of gliomas. They respond better to a combination of surgical removal followed by adequate irradiation than does any group of gliomas of similar grade of malignancy.

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WHAT PRICE HEALTH — HUMAN, THAT IS

In terms of dollars, when we contrast the scope of our current medical research effort to what we spend on other essential national activities, we are the gnat compared to the elephant. In the fiscal year of 1962, the Federal Government allocated $677 million through the National Institutes of Health to defend us against crippling and killing diseases, as compared with $2.8 billion for our farm price support and related programs. It allocated only $102 million to defend us against cancer, the cause of approximately one death every two minutes, compared with $158 million for agricultural research, including the health of cattle and pigs. It allocated $93 million for research against all heart diseases, America's number one killer, compared with $3.5 billion for the improvement of roads and highways. — David Sarnoff at Albert Lasker Medical Research Awards Luncheon, New York, Nov. 14, 1962.

Experimental Hepatic Artery Occlusion

John T. Wrzesinski, M.D., F.A.C.S.
Romeo Garcia, M.D.
Joan Beatty, R.N.

More studies of this type should be encouraged in the teaching programs of the house staffs of many of our hospitals.

ONE has only to witness an operation in which the common proper hepatic artery has been accidently ligated, divided, or which is involved by disease or preoperative trauma, to appreciate the state of helplessness that the surgeon finds himself in at a time like this. Unless the operation has been carried out to excise or expose an injured or diseased portion of the common hepatic artery, the surgeon finds himself in an operative field that makes access to this region and exposure of the proximal and distal ends of the artery almost inconceivably difficult.

It was during such an experience, in which the common hepatic artery was accidently divided, that our curiosity was aroused regarding the function and importance of this terminal artery. There is a rather common opinion among general surgeons that the interruption of the blood flow through it is a disaster of almost insurmountable implications.

Presented at the combined meeting of the Tucson-Phoenix, Denver Surgical Societies, May, 1962.
Dr. Wrzesinski is attending surgeon, Maricopa County General Hospital, Phoenix, Arizona.
Dr. Garcia is chief surgical resident, Maricopa County General Hospital, Phoenix, Arizona, 1960.
Miss Beatty is surgical nurse, Maricopa County General Hospital, Phoenix, Arizona.

From a survey of the literature it is generally conceded that accidental interruption of the blood flow to the common proper hepatic artery is followed by a mortality rate of in the neighborhood of 57 per cent.[10,17,18] An analysis was made of several personal experiences together with the reports and personal communications of individuals who had an opportunity to watch the postoperative course of individuals involved in permanent interruption of this essential artery. This led to some interesting and contradictory information. It seems that the interruption of this blood flow is not as disastrous as formerly believed. Former statistics were collected at a time when certain basic facts were not unveiled. These caused the hopeless attitude currently maintained toward this problem.

It was established by Markowitz in 1949[4,8,16] that ligation of the hepatic arteries at the hilus of the liver in the dog caused a drop in mortality from 90 per cent to 30 per cent by protecting the animals with antibiotics.[7] This former mortality rate has since been shown to be the result of necrotizing hepatitis which is due to an overgrowth of Clostridium welchii like organisms,

isolated from the liver of normal dogs on an average diet.[2,3,15,11,14] Overgrowth occurs in the anerobic environment presented by ligation. These anaerobes apparently arise in the gut and flow via the portal vein to the liver.

Often encountered in the literature are results of occlusion or ligation of all the vascular structures of the hepatic pedicle, hence would include the portal vein.[14] Cole and associates[21] demonstrated that acute interruption of the portal venous flow resulted in death in 18 out of 19 dogs, if the occlusion lasted sixty minutes or longer. Raffucci[13] demonstrated that occlusion for longer than thirty minutes of the entire hepatic pedicle was invariably fatal in dogs. However, this is a death due to vascular shock, based on congestion and accumulation of vascular volume in the splanchnic bed. Apparently some protection is offered by antibiotics in this situation also. Child,[20] who acutely ligated the portal veins in monkeys, showed that in most animals there was sufficient collateral to permit an effective blood volume to remain. The portal hypertension which develops, subsides in ten days. Man behaves similarly in this fashion,[15] although the collateral circulation is imperfect and shock, sometimes fatal, may be produced by this procedure.

Sufficient evidence also has accumulated to show that antibiotics also protect the human being against mortality if large parts of the hepatic arterial circulation is permanently interrupted.[8] In 1953, after 200 dissections of human liver over a period of six years, Michaels[22] demonstrated at least twenty-six possible routes of the collateral supply to the liver outside of the typical coeliac blood supply described. Ten different collateral pathways occur via the hepatic arteries, six pathways via a circuitous course through the lesser omentum, greater omentum, and pancreas, and ten pathways are effected outside the coeliac axis blood supply. The surgical procedure of eliminating the arterial supply to the liver in any individual is actually a difficult one because of these collaterals.

It would seem that the results of arterial ligation or occlusion of all the hilar branches of the hepatic artery of the liver in the dog, protected by antibiotics is similar to the mortality and morbidity rate in the monkey and in man when all have been protected with antibiotics.

Cooling of the liver or concomitant total body hypothermia increases the tolerance of the liver to occlusion of the blood flow at the thoracic aorta level from twenty minutes to one hour.[12]

Armed with this information it occurred to us that the two important considerations in connection with the subject of hepatic artery function was yet to be determined.

1. To determine the maximum safe occlusive period of the hepatic arteries at the hilus of the liver under the protection of antibiotics for individuals in which this is the sole arterial supply to the liver. This should compose approximately one out of three individuals.[22] The period of occlusion must be determined in light of local cooling or concomitant use of hypothermia, distal injection of anti-coagulants and the extent of existing pathology which might have stimulated collateral circulation.

2. To determine what individual has sufficient collateral circulation to survive ligation of the proper common hepatic artery or one of its main branches accidently, through the clinical proof of adequate collateral circulations.[1,19] This would allow one to clinically choose individuals in whom the re-establishment of the interrupted circulation was necessary and also to establish the length of time during which this occlusion could be maintained under ordinary or modified circumstances so as to effect this re-establishment. Individuals in whom the arterial pathways would have to be re-established by direct arterial anastomosis or by arterialization of the portal vein[6,9] may then be afforded a longer period of safety by cooling of the liver, hypothermia[12] or even perfusion of the distal artery. Schorr[23] demonstrated that partial constriction of the hepatic artery results in extensive collateral development in two to four months.

PROCEDURE

Entirely adult mongrel dogs were used in this study. All operations were performed under sodium-pentothal anesthesia with aseptic technique. The regular kennel diet was offered to all dogs — if they refused this they were offered milk and dextrose. No antibiotics were administered. In each of them a sub-costal incision was made measuring approximately 6", through all the layers of the abdomen where the various procedures were accomplished, which included: (See Figure 1)

Series I — Occlusion of the entire hepatic pedicle including all of the arterial supply,

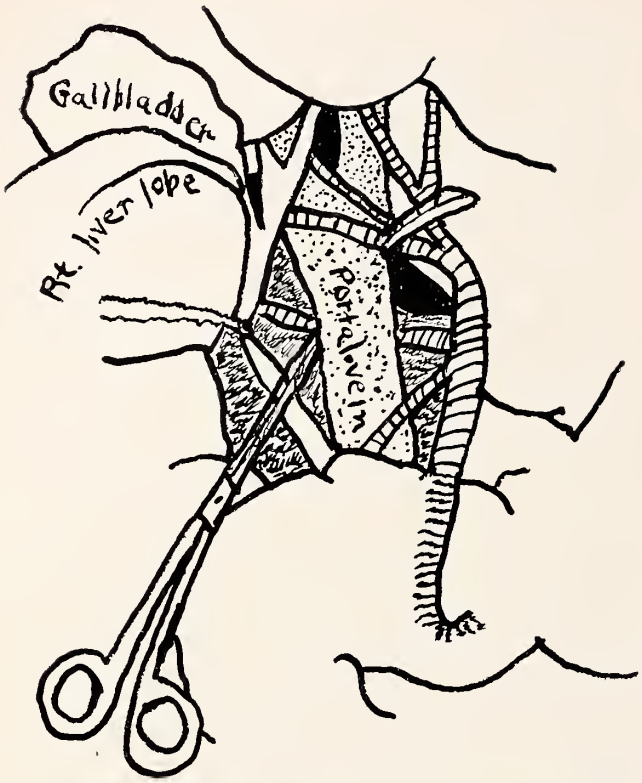


Figure 1. Technique Used to Experimentally Occlude Arterial Supply at the Hilus of the Liver in Dogs.

portal vein and the common duct done at the hilus of the liver for varying periods of time.

Series II — Occlusion of the entire hepatic pedicle, excluding the large constant hepatic artery for varying periods of time.

Series III — Occlusion of the entire hepatic pedicle at the hilus of the liver excluding the portal vein which was dissected free, for varying periods of time.

Series IV — Occlusion of the entire hepatic pedicle at the hilus of the liver excluding the portal vein with antibiotic protection was done on one dog with radiographic demonstration of collaterals.

The end point of the study in all cases was death of the animal. In cases of survival biopsies of the liver were obtained. None of the dogs were protected by antibiotics or hypothermia except the one dog in Series IV.

DATA (See Chart No. 1)

Groups I and II clamping of the entire pedicle of the liver and of the entire pedicle except the hepatic artery caused the most serious effect because of inclusion of the portal vein. Excluding the large hepatic artery in the occlusion did not alter the results. If a dog is subjected to acute occlusion of the portal vein for one half hour or longer they seldom survive.

From an analysis of the results in Series III it is apparent that up to one hour of occlusion of the arterial supply to the dogs unprotected by antibiotics is tolerated. In the three dogs occluded for 1½ hours there were two survivals. In three dogs occluded for two hours there was one survival. Roughly, occlusion is safe for one hour under these conditions. There is a 30 per cent mortality rate in 1½ hours and 66 per cent mortality for occlusion of two hours duration.

In Series IV in the occlusion of one dog of the hepatic pedicle at the hilus of the liver excluding the portal vein, with arteriographic studies of the collateral circulation. An attempt was made to choose those animals in whom death would not occur after such occlusion. (Figures 2 and 3).

CONCLUSION

It is safe to say that the following has been rather well established:



Figure 2. Retrograde Aortic Arteriogram Showing Blood Supply to Liver (Dog in Series IV)



Figure 3. Retrograde Aortic Arteriogram Showing Blood Supply to Liver with All Arterial Supply Occluded at the Hilus. Portal Vein Excluded.

1. The mortality rate in animals or man when the common hepatic artery or one of its main branches is ligated is probably in the neighborhood of 15 per cent or 20 per cent when antibiotics protection is provided.

2. Extensive collaterals exist in about 80 per cent of individuals allowing at least temporary protection until new and better collaterals can be established.

3. It is difficult to demonstrate the effective remaining collateral circulation by arteriographic methods, after occlusion of the circulation at the hilus of the liver.

4. The maximum safe duration of occlusion of a given quantitative percentage of effective arterial circulation is unestablished, in animals and in man, especially under different conditions, although complete devascularization is tolerated for only twenty minutes.

Although very recently conceived a new and possible useful method of immediately establishing quantitative, effective collaterals of the liver, at the time of an accidental injury or liga-

Chart I — SUMMARY OF RESULTS OF OCCLUSION

GROUPS	DURATION OF OCCLUSION	SURVIVAL	CLINICAL CONDITION	CONDITION OF LIVER MICROSCOPIC
Series I				
Entire pedicle,	No. 1 ½ hour	3 days	Jaundice, liver necrosis	
portal vein,	No. 2 ½ hour	3 days	Jaundice, liver necrosis	
commonduct	No. 3 1 hour	1 hour		Liver congestion
3 dogs				
Series II				
Entire pedicle,	No. 1 ½ hour	2 days	Jaundice	Liver necrosis
excluding large	No. 2 ½ hour	½ hour		No biopsy
constant hepatic	No. 3 45 min.	45 min.		Intense congestion
artery	No. 4 45 min.	45 min.		Intense congestion
5 dogs	No. 5 ½ hour	Alive & well	No effects	No Biopsy
Series III	No. 1 ½ hour	Alive & well	No effects	No Biopsy
Entire pedicle,	No. 2 ½ hour	Alive & well	No effects	No Biopsy
excluding portal vein	No. 3 45 min.	Alive & well	No effects	No Biopsy
13 dogs	No. 4 45 min.	Alive & well	No effects	No Biopsy
	No. 5 1 hour	Alive & well	No effects	Re-explored in 1 week, multiple small areas of infarction
	No. 6 1 hour	1 hour		Intense congestion
	No. 7 1½ hours	1½ hours		Intense congestion
	No. 8 1½ hours	3 days		Liver necrosis
	No. 9 1½ hours	Alive & well	No effects	No Biopsy
	No. 10 1½ hours	Alive & well	No effects	No Biopsy
	No. 11 2 hours	Alive & well	No effects	No Biopsy
	No. 12 2 hours	3 days	Vomiting, jaundice	Liver necrosis
	No. 13 2 hours	3 days	Vomiting, jaundice	Liver necrosis
Series IV	No. 1	Alive		Biopsy with arteriographical studies of the collateral circulation
Entire pedicle, excluding portal vein, with antibiotics 1 dog				

tion is being investigated. The study involves the use of radioactive iodinated rose bengal dye excretion after such a situation is encountered. It may be possible to predict the percentage of blood flow to the liver by the measuring of the amount of radioactivity over the liver twenty minutes after any accidental interruption of the circulation. It could then be determined in which individual it might be necessary to go to the great labor of attempting re-establishment of the circulation, arterialization of the portal vein, or perfusion of the liver. In those individuals with adequate collaterals, it may be possible to merely ligate the artery at any point with impunity.

Acknowledgement: Without the experimental facilities of Arizona State University, Mr. Damon, and the X Ray facilities of St. Luke's Hospital, Phoenix, Arizona and the kind services and advice of Dr. John Boyd, D.V.M., this series could not have been completed.

MORTALITY RATE OF LIGATION OF COMMON HEPATIC ARTERY IN DOGS.
PERFUSION OF THE HEPATIC ARTERY
(CIRCULATION RATES THROUGH HEPATIC ARTERY.)
Dr. Wrzesinski

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THE HAZARDS OF RESPONSIBILITY

You, Doctor, are responsible for the great advance in medical care. In congratulating yourself on the lessened morbidity and mortality of your patients, however, don't forget you are also responsible for the hazards of employing such potent therapy. You can't transfer this responsibility to the pharmaceutical industry as certain professors have attempted to do in testifying before the Senat Subcommittee. You may, however, see this responsibility transferred to Federal or state government by default unless you exercise your franchise as a citizen and become more active politically. — George E. Farrar, Jr., M. D., in *Resident Physician*, Feb. 1963.

Longitudinal Study of Mentally Retarded Infants —

Richard Koch, M.D.
Betty V. Graliker, M.S.W.
Karol Fishler, Ph.D.
Frances Gottfried, B.S.
Nancy Ragsdale, M.P.H.

This is an informative article on mental retardation. It could well be kept for a reference, especially since it concerns the problems as they arise, i.e., in infancy.

INTRODUCTION

MANY neurologically handicapped children are seen in a variety of specialty clinics which restrict their medical care for the patient to the particular interest of the examining physician. As a result, multiply-handicapped children are often treated by a variety of specialists but seldom is the child's condition considered as a whole.

In 1954, a project was initiated to study this problem, and a preliminary report of the results have been published elsewhere. [1] The purpose was to evaluate the need for integrated pediatric care for the young, mentally handicapped child. Emphasis was placed upon early diagnosis in order to discover conditions in which mental retardation might be ameliorated or entirely prevented. This project has been continued longitudinally in a prospective fashion from 1954 to the present by following the initial sample of 143 infants referred to this facility.

From the Child Development Clinic of the Los Angeles Children's Hospital and the Department of Pediatrics, University of Southern California School of Medicine.
Supported by a grant from the Children's Bureau, Department of Health, Education and Welfare, Washington, D.C., through the Bureau of Maternal and Child Health, California State Department of Health, the See Foundation, Los Angeles, California and Ross Laboratories, Columbus, Ohio.

Method and Procedure

All infants accepted for study were either referred as mentally retarded or suspected of being mentally retarded. An arbitrary age limit of one year for acceptance was established because of the longitudinal aspects of this project and the emphasis placed on the importance of early diagnosis. Due to the extensive nature of the data being gathered, only those intact families from Los Angeles County who were able to communicate easily and were willing to participate in such a long term study were included. All subjects have been followed at regular intervals throughout the observation period. A blood count, urinalysis, tuberculin skin test, skull x-ray, bone age determination, electroencephalograph, urine phenylpyruvic acid test ,and urine amino-acid screening were included in the initial medical work-up. Periodic Gesell[2] devclopmental and physical examinations were performed and parent counseling and homc visits were provided as nccded.

Sibling data was obtained by personal examination of all infants born to these families during the project, school reports with psychometric data on older children, and personal interview of teenagers. Thc children with behavior prob-

TABLE I

Present status of 143 infants studied in the Mental Retardation Project, Childrens Hospital, Los Angeles, California, 1955-61

Year Admitted to Study	Number	Still at Home	In Foster Homes	In State Institution	Dead	Lost
1955	22	11	1	7	3	0
1956	58	30	1	15	10	2
1957	32	22	0	2	6	2
1958	18	12	2	2	1	1
1959	13	10	2	0	1	0
Total	143	85	6	26	21	5
Per Cent	100	59.9	4	18.1	14.5	3.5

lems were also examined, interviewed and tested by the project pediatrician and psychologist. The social data were gathered by the social worker using the customary casework techniques.

Characteristics Of The Sample

Twenty-two children were admitted to the study in 1955, 58 in 1956, 32 in 1957, 18 in 1958 and 13 in 1959. Seventy-six (53 per cent) were male and 67 female. All were less than thirteen months of age at the time of referral. Seven were Negro, 136 Caucasian. The source of referral, religious affiliation and socioeconomic status are described in the previous report.[1]

There were 358 siblings for an average of 3.5 children per family (including the retarded child). Ninety-three of these were born after the birth of the retarded child. As recorded in Table 1, 85 of the 143 are still cared for at home. Twenty-one have died, 26 are institutionalized, 6 are in foster homes, and 5 have been lost to the study due to hostility or loss of interest by the parents.

Clinical Results

The diagnoses[3] listed in Table 2 were made after the children had been followed in the project for at least one year. Mongolism accounted for the single largest group (37.1 per cent) because of easy recognition early in infancy. The second largest group (27.2 per cent) were children with congenital cerebral anomalies. This group consisted of children with hydrocephaly, microcephaly, cortical hypoplasia, cerebral agenesis, etc. Metabolic diseases accounted for only five per cent of the sample. These consisted of single cases of spontaneous hypoglycemia, phenylketonuria, galactosemia, Hurler's disease, Niemann-Picks disease, Lowe's disease and Tay-Sachs disease.

TABLE II

Diagnosis in 143 infants followed from 1955-61 in a special clinic for retarded children

AAMD CODE[3]	DIAGNOSIS	NUMBER
11.2	Encephalopathy due to prenatal infection	1
12.1	Encephalopathy due to postnatal infection (virus)	1
12.2	Encephalopathy due to postnatal infection (bacterial)	4
23	Bilirubin encephalopathy	3
24	Post-immunization encephalopathy	1
29	Encephalopathy due to intoxication (atropine)	1
32	Encephalopathy due to birth trauma	1
33	Encephalopathy due to neonatal anoxia	2
40	Tay Sach's disease	1
41.5	Niemann-Pick's disease	1
42	Phenylketonuria	1
43	Encephalopathy due to disorder of protein metabolism	1
44	Galactosemia	1
45.2	Hypoglycemia	1
47	Hypothyroidism	6
48	Hurler's syndrome	1
61	Cerebral defect, congenital	19
62	Cerebral defect, congenital, with cranial anomaly	19
64	Mongolism	53
78	Encephalopathy associated with prematurity	5
81, 82, 83	Pseudoretardation	7
..	Normal children with or without physical handicaps	13
Total		143

TABLE III

Medical care needed by 143 infants studied in the Mental Retardation Project, Childrens Hospital, Los Angeles, California, 1955-61

A.	Hospitalization	
	1) Due to neonatal complications	32
	2) Due to diagnostic admissions	20
	3) Due to acute illness	54
	4) Due to acute surgical need	21
	5) Due to elective surgery	37
B.	Specialty Consultation Required	
	1) Medical	57
	2) Surgical	43
C.	Major illness cared for at home	25

TABLE IV

Diagnosis in the 32 children referred to the project as retarded, but who have IQ's of 70 or over on follow-up of at least three years.

Diagnosis	Number	Remarks
Physical handicaps	14	Various, usually multiple (one with deafness)
Hypothyroidism	4	Diagnosis at 2, 3, 3, and 9 months of age.
Premature birth	4	Delayed maturation
A-O Incompatibility	1	Dental Dysplasia
Kernicterus due to prematurity	1	Cerebral palsy with deafness
Emotional deprivation	1	Diagnosed at 8 months. IQ now 79.
Phenylketonuria	1	Diagnosed at 2½ months
Galactosemia	1	IQ 113.
Hypoglycemia	1	IQ 75.
Mongolism	1	IQ 70. No other anomalies.
Post H-influenzal meningitis	1	Speech defect
Seizures (Myoclonic)	1	Responded to gemonil
Deafness	1	Severe loss

The medical care required by these 143 infants during the five year period of study was extensive. (Table 3). One hundred sixty-four separate admissions to Childrens Hospitals were required. One Mongoloid child alone was admitted eight times for recurrent pneumonia and/or congestive heart failure before he expired. Most of these admissions were precipitated by acute medical illnesses and surgical emergencies. One hundred specialty consultations were also required. Twenty-five children required additional medical surveillance in the home as well because of major illnesses such as pneumonia or contagious diseases. Three children developed positive tuberculin skin tests and were treated with prophylactic isoniazid. The above data does not include the routine pediatric care provided these families by their family physicians.

Associated handicaps were quite common. Seizures occurred in 28.6 per cent (41) of the children. Ocular abnormalities of various types were noted in 32.8 per cent (47), congenital heart disease in 11.8 per cent (17), and skeletal anomalies in 9.8 per cent (14). Ocular abnormalities in particular were not apt to be noted during early infancy. In only seven of the 47 children with ocular disorders such as esotropia, exotropia and nystagmus were the diagnoses recorded prior to one year of age. The same was true of microcephaly. In only two of the 13 microcephalic children was the diagnosis evident at birth. On the other hand, 79.2 per cent of the Mongoloid children were recognized at birth.

The numerous associated handicaps made psychological evaluation of each child difficult. Although all children were referred to the project as being mentally retarded, note that after a follow-up of at least two to five years (Table 4), 32 children were not classified as mentally retarded. Of this group, 14 had associated physical handicaps which obscured the true potential of the child at the time of referral. Eight are of normal intellect because of medical therapy. Those who benefited as a result of early diagnosis were four cases of hypothyroidism, and single cases of phenylketonuria, galactosemia, hypoglycemia, and one infant with myoclonic seizures who responded nicely to anti-convulsant medication. Three of the group had associated hearing disorders which made intellectual evaluation difficult. In one of these, deafness was suspected at eight months, but in the other two, it was not discovered until age three and four years respectively. Four premature infants were referred for study who merely exhibited delayed development due to the discrepancy in gestational and chronological age.

The retarded child was a financial burden to the parents in several ways. A greater prevalence of Caesarean section births were noted in this group. Often, the retarded infant was hospitalized longer as a newborn, thus increasing financial expenditure at the very onset. Prolonged hospitalization was required in 32 of these infants because of prematurity, respiratory difficulties, newborn feeding problems, neonatal infections, surgical problems, or merely due to parental indecision because of the problem of disposition, viz., foster home versus home care for Mongoloid infants (Table 5). Illnesses, particularly respiratory in nature, were more common. Surgical correction of associated congenital malformations required expenditure of sums of money that some of the younger parents could

TABLE V

Neonatal complications prolonging hospital stay of over 7 days to as long as 6 months in 32 infants seen in the Mental Retardation Project, 1955-61.

Condition	Number
Prematurity	6
Respiratory difficulty	2
Feeding problem	1
Infection	1
Surgical (emergency)	5
Parental indecision	5
Birth injury	3
Hydrocephalus	3
Microcephaly	1
Multiple congenital anomalies	3
Drug intoxication	1
Erythroblastosis	1
Total	32

ill afford. "Shopping" in regard to diagnosis was another important cause of financial depletion. Most families had already been to three or four physicians for help prior to clinic referral. Other expenditures for medical care included such things as medications and fees for nursery schools and special training classes.

The more severly retarded the infant was, the higher the mortality rate (Table 6.) Death was due to respiratory tract infection in 10, meningitis in 1, congestive heart failure in 4, prolonged seizures in 2, inanition in 1, Tay-Sachs disease in 1, Hurler's disease in 1 and Niemann-Picks disease in 1. The severe degree of retardation contributed greatly to the demise of the 10 children who died of respiratory disease because of recurrent aspiration and lack of adequate cough reflex.

EIGHT of the 358 siblings surveyed in the project (Table 7) were mentally retarded (2.2 per cent). Ninety-three of these were born subsequent to the birth of the retarded child and only two of these were retarded (2.15 per cent). In regard to the teenage siblings, all but seven of the 21 were interviewed and found to be healthy, normal persons doing well in school. In two of the siblings with behavior problems, the disorder antedated the birth of the retarded child. In one, there was accompanying mental limitation, and one was due to sibling rivalry with the retarded child.

TABLE VI

Relationship of Intellectual Ability and Mortality Rate in 143 Infants seen in the Mental Retardation Project, 1955-61.

Degree of Retardation	Number	Deaths	%
Severe (I.Q.←39)	74	17	23.0
Moderate (I.Q. 40-54)	34	4	12.0
Mild (I.Q. 55-69)	3	0	..
None (I.Q.→70)	32	0	..

Although psychiatric care was recommended for 21 families, only five actually obtained such help. In four of these families, marital problems had existed for years prior to the birth of the retarded child, and the birth of the mentally retarded child merely added more strain to an already weakening marital relationship. In the fifth family the mother had a nervous breakdown following placement of her Mongoloid baby in an institution. The infant was placed in a nursing home during the neonatal period and subsequently in a state hospital for retarded children at the age of two years. Following this, his mother experienced increasing tension, crying episodes, and depression. Subsequently she has been receiving intensive psychiatric care and has made an excellent recovery.

TABLE VII

Sibling survey of families of 143 infants studied in the Mental Retardation Project*, 1955-61.

Total number of siblings	358
Number of normal siblings (93 born subsequent to birth of retarded child)	333
Siblings with congenital anomalies	9
Siblings with mental retardation	8
Siblings with seizures	6
Siblings with hearing loss	2
Siblings with cerebral palsy	1**

*Average number of children per family: 3.5

**Included also among mentally retarded siblings

In only four families has divorce or separation occurred during the 5 year study period. In one family the mother is schizophrenic and has been an unstable person all of her life. She had been hospitalized in a mental hospital once and also been treated psychotherapeutically at varying periods. In two families the fathers were alcoholics over a long period of time and divorce seemed inevitable even when first seen by projest personnel. In the fourth family the husband was emotionally unstable. Shortly after the family separated he committed suicide. In none of these families was the retarded child the sole cause of marital discord. In all four families, however, the burden posed by the presence of a defective child in the home intensified the already existing problems in the marital relationship.

DISCUSSION

Tihs study must be interpreted in the light of the fact that the sample contains a larger number of upper and middle class families than is representative of Los Angeles County.[4] The requirement of participation in a long term project and the fact that Childrens Hospital serves primarily a middle class group of people probably account for the predominance of upper and middle class families in this study.

If one compares diagnoses established in our sample with those of an institutionalized population[5], discrepancies are immediately apparent. The age limit of one year tended to include in this study obviously defective children or those with multiple handicaps which suggested mental retardation to the referring physician. Mongolism and infants with congenital cranial anomalies accounted for a large part of our sample because these conditions were easily recognized. On the other hand very few children in our study were familial defectives or brain damaged by birth trauma.

The importance of having young mentally retarded children under continuous medical surveillance is well illustrated by the great need for professional care as demonstrated by this study. The large number of physical handicaps, seizures and intercurrent infections obviously demand continuing medical surveillance.

The occurrence of six cases of thyroid disease in the sample is unusual. Perhaps this is due to the fact that an active endocrine service exists at the hospital accounting for referral of such patients. Although two of these children had classical signs of hypothyroidism, the diagnosis was unrecognized for some months. The excellent response to therapy of the four cases diagnosed during the first year of life was due to early diagnosis and prompt, adequate dosage of thyroid medication. These were diagnosed at 2, 3, 3 and 9 months of age respectively. The intellectual ability of the three diagnosed at three months of age or less was excellent with intelligence quotients over 100, whereas that of the infant diagnosed at nine months is only 80. Generally, one-half grain was utilized as an initial daily dose and rapidly increased to two grains per day over a one month period. Thereafter, periodic bone age and Protein-bound-Iodine determinations were utilized to guide thyroid dosage.

The value of routine screening for phenylketonuria[6] was well-demonstrated by the one case discovered in the sample. This was the fifth child in this family and was referred to the project at seven months of age as a possible Mongoloid because of mental retardation and bilateral epicanthal folds. The four other siblings were normal. Routine urine testing for phenylpyruvic acid revealed the true diagnosis. The response to the low phenylalanine diet was gratifying, as, at the time of diagnosis, the infant was unable to roll over or sit up (D.Q. 37). Three months later (10 months), the infant was more responsive, able to sit up and bear weight. By 18 months of age, he was able to walk and say a few words, with a developmental quotient of 82. At 3½ years, the intelligence quotient was 87, and he was verbalizing.

SINCE therapy with the low phenylalanine diet is most effective if instituted during infancy, the search for identification of such patients must be intensified. The ferric chloride test for phenylpyruvic acid in the urine must become as much a part of well baby care as inoculations against various diseases. The need for including this test in all well baby programs cannot be over-emphasized.

The galacrosemic infant has also done very well on a galactose free diet, and at four years of age has an intelligence quotient of 100.

The Mongoloid with an intelligence quotient of 70 (Table 4) does not have any other associated congenital anomalies. His features are typically Mongoloid. The parents were advised initially by their family physician to institutionalize him. However, he developed so well that they decided to keep him at home. At present, he is in a special class for retarded children. He is one of the brightest of the Mongoloid group, however, his poor speech is his greatest handicap.

The large number of Mongoloid children in the sample afforded an opportunity to record average developmental norms for this group cared for in the home. The average Mongoloid observed in this study sat up at 11-12 months, walked at 27 months, but did not develop speech with phrases and short sentences until 5-6 years of age. Toilet training was routinely started at age 2 years and generally accomplished by 3-4 years of age. Developmental quotients often varied from 60 to 80 during early infancy and grad-

ually declined to values of 30-40 by 3-4 years of age. Developmental quotients at this later age were fairly good predictors of intelligence quotients obtained at 5 years of age, as determined by the Stanford-Binet Scale.[7]

One of the premature infants was a typical example of megacephaly. At age nine months, he was referred with the diagnosis of hydrocephalus. The head circumference was 19 inches compared to a crown-rump length of only 15 inches. Birth weight was 1 pound, 11 ounces. Pneumoencephalogram was performed and revealed frontal lobe atrophy. The electroencephalogram was diffusely abnormal; however, his subsequent growth and development has been entirely normal. At age six, his I.Q. is 116, and the electroencephalogram is normal.

The results of the sibling survey may be biased by the fact that very few of the index cases fell into the familially defective group. It would appear from the collected data that the physician can inform parents that their chances of having another retarded child are quite small (3-4 per cent) unless the child has a form of retardation which is inherited such as Tay-Sachs or phenylketonuria. If the mother is over the age of 40, however, it has been our practice to caution against conception because of the increased prevalence of Mongolism with advanced maternal age.

The vital role played by the clinical psychologist in this project is well documented by the fact that 22 per cent of the sample was eventually found to fall within the borderline or normal range of intelligence. This was sometimes suspected clinically but at times it was difficult to be certain due to associated physical handicaps. As a rule, periodic evaluations by the psychologist were found to be much more reliable than single isolated testing procedures.

The social worker played a vital role in maintaining rapport with the family. Families with marital problems were able to receive counseling promptly. Frequently she was able to reinterpret the medical data for the parents after their conference with the physician. The low divorce and separation rate and the minimal loss of families to the project may well be a direct indication of the social worker's contribution. Each of three workers carried 40-50 families during the study and participated in all of the medical conferences with the parents.

The public health nurse was a very useful member of the project team. Home evaluation, observations of family discipline, and home demonstrations of training techniques were valuable in helping maintain close rapport with the families. The maintenance of good rapport with these families is best illustrated by the small loss of families to the project occurring over a five year period.

All four members of the team participated as a group periodically in counseling parents. This proved to be a very valuable technique and was acceptable to the parents.

SUMMARY

Approximately 22 per cent of the children referred to the mental retardation project at the Los Angeles Childrens Hospital were not mentally retarded. Another 5 per cent had preventable or modifiable forms of mental retardation such as hypothyroidism, phenylketonuria or galactosemia. Continued sympathetic care by the physician was mandatory for optimal results. Except in known hereditary forms of mental retardation such as Tay-Sach's disease, one may advise parents that the chance is quite small that more mentally retarded children will be born in the same family. The mentally retarded child was a heavy financial burden on the family budget, but with home care, proper guidance and counseling, it was our impression that the emotional upheavals caused by a defective child were sometimes avoided or greatly minimized.

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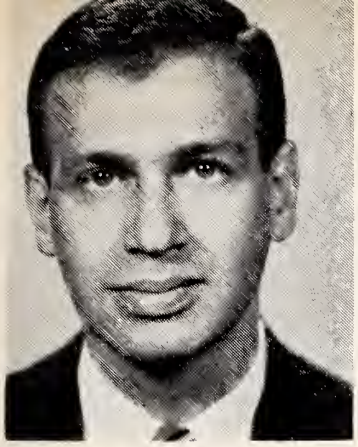
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The Clinical Diagnosis of Hyperparathyroidism

Stanley H. Schneider, M.D.

A challenging treatise, aggressively presented, on the still too difficult problems in the correct diagnosis of a usually overlooked syndrome. The multiple symptomatology, the diverse body system involvement, the lack of specificity of all presently known laboratory procedures, and the differential diagnosis are all beautifully presented. The probably chief value of articles such as these is to again remind us of the existence of certain syndromes to explain diagnostic problems, with the hope that, as always, increased index of suspicion will lead to increased diagnostic accuracy.

CHANCE has long been associated with human progress. Perhaps in no other area of clinical study, have observation and judicious use of trial and error coupled with chance been as fruitful in advancing understanding as in hyperparathyroidism. Starting with Felix Mandl who treated a patient with osteitis fibrosa with injections of parathyroid extract without relief, before removing a parathyroid adenoma, the clinician has been backing into the diagnosis.

In the last 36 years the diagnosis has been made with increasing frequency but with greater difficulty. Diagnostic emphasis has shifted from bone to stone to abdominal groan to mental moan.

Until Albright, Aub, & Bauer, in 1934, emphasized the occurrence of renal stones in the absence of skeletal disease, all cases were discovered through the presence of osteitis fibrosa.

Snapper, after a stay in China of several years duration in the late 1930's, observed that almost all the cases seen in China were found in patients with far-advanced Von Recklinghausen's Disease. Few stone formers were found. He advanced the intriguing theory that the presenting organ involvement may be due to the availability of exogenous calcium. The lack of milk in the Chinese diet producing skeletal involvement; the greater availability of milk in Europe and America spares the skeleton and produces kidney stones.

More recently the abdominal manifestations of hypercalcemia, secondary to hyperparathyroidism have been emphasized. In the last few years the psychiatric presentation has been recognized. Finally the syndrome of parathyrotoxicosis in which the entire gamut of signs and symptoms are telescoped in time and severity has been delineated.

We can account for the slow evolution of clinical exactitude on the basis of our failure to discern a specific test that establishes the diagnosis. The protein nature of parathormone probably means that we shall have to be satisfied with time consuming bio-assay much as in the

Presented at Tucson Medical Center March 23, 1962. Doctor Schneider has offices at 601 North Wilmot Road, Tucson, Arizona.

manner of insulin-assay. Thus, the most dramatic and obvious problems clamor for solution while the more obscure requires time to ferment in the mind of the astute physician.

It is informative to review a large series such as that of the Mayo Clinic in order to see how proven hyperparathyroidism presents.

Figure 1. Presenting Complaint or Diagnostic Clue 380 cases

Skeletal Syndrome	54 or 14.5%
Urologic Syndrome	264 or 70.0%
Hypercalcemia	11
Pancreatitis	3
Adenomatosis	3
Serendipity	45

Figure 2. illustrates the skeletal problems seen in hyperparathyroidism.

Figure 2. Skeletal Manifestations in 380 cases

None evident	259
Minimal without symptoms	51
Mild to mod. demineralization	24
Osteitis Fibrosa	42
Unrelated Abnormalities	4

Renal calculi remain the major source of discovery of hyperparathyroidism. Estimates vary but about 10% of people with renal calculi can be shown to have hyperparathyroidism. Figure 3. illustrates the manifestations of calcinosis and Figure 4. the types of calcinosis.

Figure 3. Manifestations of Urinary Calculi in 380 cases

	Cases	
	No.	%
No manifestations	89	23.4
Urologic Syndrome	224	64.2
Symptoms referable to Calcinosis	47	12.4

Figure 4. Types of Calcinosis in 341 cases

	Cases	
	No.	%
Nephrocalcinosis	27	7.1
Single renal stone	56	14.7
Multiple in 1 kidney	107	28.2
Bilateral	129	33.9
Staghorn	12	3.2
Bladder Calculi	10	2.6

Basically, the diagnosis of hyperparathyroidism rests on the concomitance of certain laboratory findings. Without a doubt, the single most important finding is Hypercalcemia on repeated determinations by a reliable laboratory.

Figure 5. lists the symptoms of Hypercalcemia

Figure 5. Symptoms of Hypercalcemia

Malaise	Polyruria
Muscular Weakness	Polydipsia
Bradycardia	Nausea-vomiting
Depression	Abdominal Pain
Anorexia	Constipation

Figure 6. lists the signs of Hypercalcemia.

Figure 6. Signs of Hypercalcemia

Arrhythmias	Hypotonicity
Short QT Interval	Depressed Reflexes
Deposits in Conjunctivia	Hyperextensible joints
Bone tenderness	

The known causes of hypercalcemia then, represent the basic differential diagnosis of hyperparathyroidism. Figure 7 represents an attempt to arrive at a physiologic explanation of hypercalcemia.

Figure 7. Causes of Hypercalcemia

I. **Increased Absorption**
 1. Milk-Alkali Syndrome
 2. Vitamin D Intoxication
 3. Sarcoidosis
 4. Hypercalcemia of infants

II. **Increased Bone Resorption**
 1. Hyperparathyroidism
 2. Chronic Renal Disease
 3. Hyperthyroidism
 4. Metastatic Tumor
 5. Tumor without metastases
 Lung, kidney and ovary
 6. Paget's Disease
 7. Polyostotic Fibrous Dysplasia

III. **Decreased Bone Synthesis**
 1. Osteoporosis of Disuse
 2. Adrenal Insufficiency

At this point it might be worthwhile to mention briefly the other laboratory findings frequently used as ancillary evidence of hyperparathyroidism. Serum phosphorus levels are expected to be low but in 41% of the cases without azotemia i.e. with a BUN of less than 30 mgm%

the serum phosphorus was normal. The alkaline phosphatase is elevated only in the presence of bone disease.

Frequently the Bauer-Aub diet, less than 300 mgm of calcium per day is of aid. On this diet a normal individual will excrete between 60-170 mgm calcium per day in the urine. In hyperparathyroidism, which by definition is not responsive to changes in the internal milieu, hypercalcuria persists. However, in 18% of the Mayo Clinic Series, patients with proven hyperparathyroidism responded in a normal manner. More recently Cortisone in high doses for 7-10 days has been found to suppress the hypercalcemia found in hypervitaminosis D, sarcoid, thyrotoxicosis, myeloma and some cases of metastatic carcinoma. This has not been found to be true in hyperparathyroidism except one or two instances so far reported. Since one of the presumed primary actions of parathormone is to increase the renal excretion of phosphorus, Schaaf and Kyle proposed in 1954, the use of renal clearance of phosphorus as an aid to diagnosis. This test has, I suspect, been a prime reason for the recent flurry of interest in hyperparathyroidism. The phosphorus clearance or the easily derived tubular reabsorption of phosphorus (TRP) is a simple bed side procedure. It involves setting up a water diuresis to achieve a urinary output of 10 ml/,in., timing the urine flow exactly over a period of three hours and measuring urinary volume, urinary phosphorus and blood phosphorus. The phosphate clearance (normally 10.8 plus or minus 2.7 ml/min.) is well preserved until the BUN rises above 35 mgm%. The normal TRP is between 78-90%. Unfortunately, the clinical application of the test has not been proven to be completely reliable. Many other causes of hypercalcemia have been shown to be associated with depressed TRP.

PEPTIC Ulcer was found in 15.5% of one series of patients with hyperparathyroidism. Conversely 1.3% of 300 consecutive patients with peptic ulcer were found to have Hyperparathyroidism. The ulcer in this disease is usually virulent. One should think of the diagnosis in any patient with an ulcer who complains that treatment makes him worse.

Recently, two presumably congenital and certainly familial syndromes have attracted attention. Sporadic reports of acute pancreatitis associated with hyperparathyroidism reached a crescendo, when a series of eight cases in a family grouping were reported.

Finally, familial adenomatosis of multiple endocrine glands is established as a real entity. In this syndrome there are found functioning adenomas of the islets of Langerhans, parathyroids and either functioning or non-functioning adenomas of the pituitary. Of course the separate oversecreting glands produce their own unique symptomatology. The relationship of this syndrome to the Zollinger-Ellison syndrome, if any, is unclear.

Serendipity in this diagnosis is common. In 9 cases of one series, the initial serum calcium was drawn for a clinical suspicion of hypocalcemia. In at least 2 instances, severely depressed patients were saved from electro-shock therapy by judicious calcium determinations.

In conclusion, I should like to describe briefly the picture of parathyroid storm, also termed parathyrotoxicosis or hyper-hyperparathyroidism. Its importance lies in the rapidity of the course. This is an acute fulminating illness terminating in death unless surgical intercession is pressed. It presents most of the symptoms of hypercalcemia although in at least one case the level of serum calcium was not very high suggesting that some other factor or factors may be operative. Briefly the patient develops anorexia, vomiting, abdominal pain, polyuria, polydipsia, profound muscular weakness and within hours to a few days goes on to dehydration, oliguria, uremia, coma and death.

There is no question but that our knowledge is imperfect and our techniques clumsy. Slowly, the specifics of hyperparathyroidism will come into view and then one of the curious challenges of medicine will become routine and the literature will be duller for it.

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Drunk Driver or Dangerous Driver?

A New Approach

Edward L. Breazeale
James D. VanHorne

Alcoholic intoxication is but one of a number of causes of dangerous driving. The individual with prolonged reaction time or impaired coordination from any cause may be as dangerous as one intoxicated. The authors suggest the determination of reaction time and percent coordination provide a useful screening procedure to detect the "dangerous driver."

THIS age old question has been with us ever since we have had automobiles, and to date we have no completely satisfactory answer.

The authors have analyzed thousands of blood, breath, urine and saliva samples for alcohol over the last twenty-five years. Most of these samples were run in support of a "drunk driving" charge. We have seen all types and stages of intoxication, and one fact stands out, namely, no two cases are identical. On a national scale research shows that when a person's blood alcohol has reached 0.15% by weight that the subject has lost 50% of his NORMAL reaction time and coordination. In the southwest this figure is slightly lower, in that we have found that when a person has 0.12% alcohol by weight in his blood stream that he has reduced his reaction time and coordination by one-half. It must be kept in mind that we are speaking of the person's NORMAL reaction time (RT) and coordination (C%).

Let us consider two normal people, both in good health and neither tired. The first has a good reaction time (RT) of 0.40 seconds and a good coordination (C%) of 80%. The second is slower with an RT of 0.8 seconds and not as well coordinated with a C% of 40. Both are within the normal range and would be considered as good drivers by all standards. If both would be given enough alcohol to raise their blood levels to 0.15% both would have lost 50% of their NORMAL RT and C%. Subject number one now has an RT of 0.60 seconds and a C% of 40%, while number two has an RT of 1.2 seconds and a C% of 20. It is quite obvious that both drivers are not at the same degree of intoxication. Such reactions are not impossible, and in fact probably occur quite frequently. As the laws now stand both would be "under the influence" if blood or breath samples were run, and both would join the "One hundred dollars and ten days" club. The first driver in this case has as good or better reflexes when he has 0.15% alcohol in his blood stream than the second has when he has none. This points out the facts that "all dangerous drivers are not drunk drivers, and that all drinking drivers are not dangerous drivers."

Arizona Serological Laboratories, Tucson, Arizona.

There are several means of determining the percentage of alcohol in a person's blood. Analysis of the blood is by far the best, yet it has its shortcomings. Breath, whether it is run by the Harger "Drunkometer", the Borkenstein "Breathalyser" or the Forrester "Intoximeter" is indirect by all three means. All are of value if properly run and read. All, including the blood analysis, measure only the volatile material in the blood or breath that is oxidizable, they are not specific for alcohol, but rather measure a group of substances that can be oxidized.

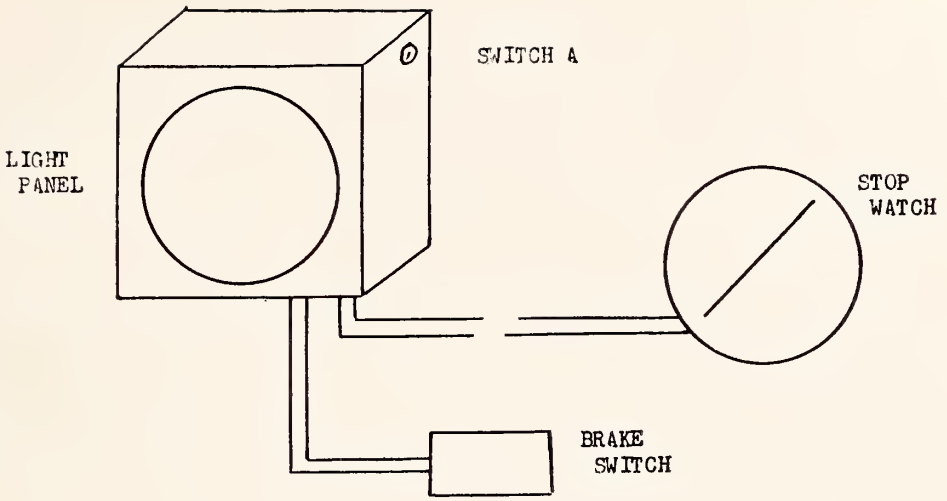


Figure 1

The list that will produce the outward symptoms of intoxication and render a person unfit to operate an automobile is long. Fear, fatigue, medication, illness, alcohol, drugs, lack of sleep, and carbonmonoxide are but a few. In each case the end result in the same in that they will decrease a person's RT and C%. If such reduction is marked enough, a dangerous driver results. The simple test for the alcoholic level in the person's blood will tell if they have legally overindulged, but it will not tell if that person is a dangerous driver. It will not indicate if any of the other factors causing poor reaction and coordination are effecting the driver. The present testing system is picking out the drinking driver, but not the ill, drugged, infirm or the physiologically poor driver. It must be remembered that the drinking driver is not necessarily a dangerous driver.

The present laws all read to include the drugged driver. However, only on rare occasions is a driver tried for driving "under the influence of drugs." This is not the fault of the officer, but rather in the system now in use for the detection of the drugged. The driver who is drugged may be as dangerous, or even more so, than the drinking driver. The same is true of the infirm, sleepy, ill, or unfit driver. For the officer on the road to correctly "diagnose" the dangerous driver some other test must be used than the simple test for alcohol. The use of the reaction time (RT) and coordination percentage (C%) seems to offer a solution in the field. To evaluate the use of such tests this laboratory carried out the experiments outlined below. In reading the results it should be kept in mind that this report is based on a small series of subjects — 667 people were tested for normal readings. A series of 50 were tested for the effects of alcohol. However, the overall effect of the reduction of RT and C% was established by examining a series of 250 subjects by other means. It was found that the reduction as measured by the means described in this paper followed the same pattern as was shown by the other test methods.

DESCRIPTION of the INSTRUMENT

The instrument used in these experiments was designed by this laboratory. It is shown diagrammatically in figure 1. In operation the light panel is placed in front of the driver on the dash board, and the brake switch attached to the brake pedal. The motor is not running, and it has been found to be advisable to remove the ignition keys from the switch while conducting the tests. Switch "A" is turned to RT. The subject under test is told to remove his foot from the gasoline feed and apply the brakes as quickly as possible after the red light on the panel turns on. The operator, sitting to the right of the test subject, then depresses the stem of the stop watch which turns on the light and also the watch is set in motion. The watch is graduated in 1/100 seconds. When the subject "hits his brakes" the red light is turned off, and the watch

stopped, giving the reaction time of the subject. The test is repeated 6-8 times, and the average recorded as the RT. The switch "A" is then turned to C%. In this position the light is on for ¼ second and off ¾ seconds. The test subject is told that if he can depress the brake pedal in rhythm with the light that he can keep it off. He is instructed how to run the test, given several trial runs and then the test proper. The average is calculated for 25-50 tests as the C%.

RESULTS

A series of people were tested as outlined above to establish the normal range for the RT and C%. The results are given in table 1 below. These are values for normal healthy people.

From these results it does not seem as though age or sex effects the reaction or coordination percentages. While the tests were being run the person's weight, height and years of driving experience were noted. None showed any effect on the values obtained.

A series of 50 test subjects were examined for RT and C% values, and a sample of blood collected for alcohol analysis. They were then given varying quantities of pure grain alcohol, and the tests repeated after 45 minutes. We have given the results on six of the subjects in table 2 below. The others followed the same pattern.

These results serve to illustrate the loss of ability of an individual to respond to a stimulus

TABLE 1

Age Years	Sex	Number Tested	Average RT*	Average C%**	Average Spread RT*	Average Spread C%**
16-20	M	75	0.4	62	0.3-1.0	45-90
	F	50	0.5	58	0.3-1.0	40-90
20-30	M	100	0.45	60	0.4-1.0	35-85
	F	65	0.45	62	0.3-1.0	37-90
30-40	M	90	0.5	65	0.4-0.9	35-88
	F	60	0.45	60	0.4-0.8	38-90
40-50	M	60	0.43	68	0.3-0.9	38-88
	F	57	0.63	61	0.4-1.0	37-89
50-60	M	42	0.43	62	0.3-1.0	39-90
	F	31	0.54	59	0.3-1.0	39-85
Over 60	M	22	0.45	61	0.3-1.0	41-88
	F	15	0.45	63	0.4-1.0	40-90
Average	M	389	0.4	63	0.3-1.0	35-90
	F	278	0.43	61	0.3-1.0	37-90
Overall Average		667	0.42	62	0.3-1.0	35-90

*Reaction time in seconds.

**Coordination percentage.

All test subjects with the exception of a few in the 16-20 year group were automobile drivers.

TABLE 2

Subject Number	Blood Alcohol % Control	Blood Alcohol % 45 Minutes	Reaction Time Control	Reaction Time 45 Minutes	Coordination % Control	Coordination % 45 Minutes
1.	0	0.16%	0.45 Sec.	0.70 Sec.	82%	42%
2.	0	0.10	0.60	0.80	75	45
3.	0	0.12	0.80	1.10	40	22
4.	0	0.18	0.60	1.28	72	30
5.	0	0.10	0.80	1.10	50	35
6.	0	0.15	0.60	0.88	60	35

at various levels of blood alcohol as measured by this instrument. It also points out that the same level of alcohol will not place all people in the same degree of intoxication.

CONCLUSIONS

Intoxication is but one of a number of causes of dangerous driving. Blood alcohol percentages give but one cause, and then only in a relative manner. It does not measure the driver's ability to operate an automobile, it does not take into consideration the possibility of drugs, illness nor fatigue. The field test (Objective) partially takes these factors into consideration, but does not exclude the officer's personal opinion. The instrument described in this report may be the answer, as it is far more objective.

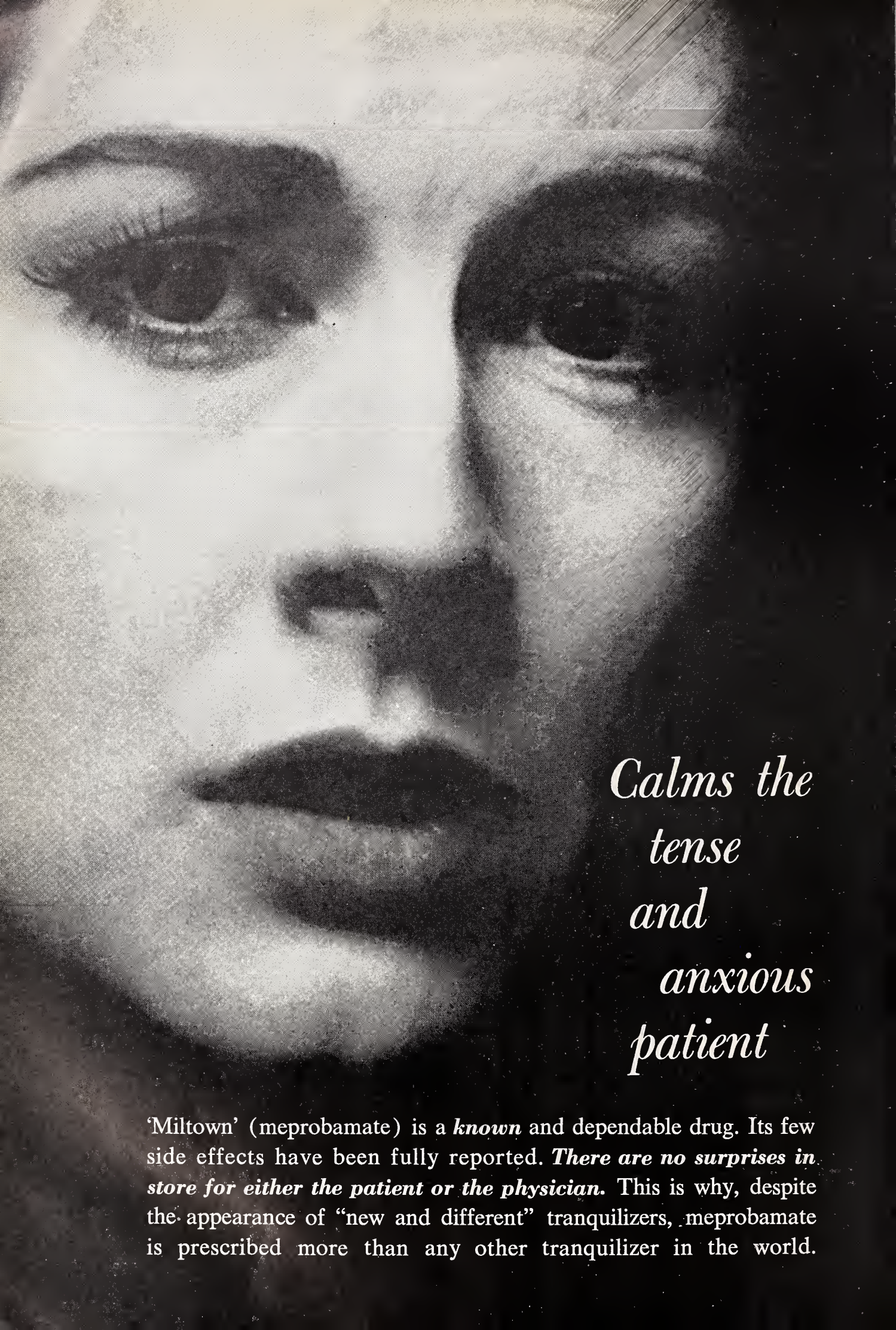
This article is not to be construed as the authors objection to the various tests for intoxication such as blood, breath, urine etc. Drunk driving is dangerous. However, we do feel that there are numerous drivers on the road that are real dangers, and the officers are missing them due to their inability to detect them. We also feel that the cold figure of 0.15% in itself is not enough information to convict a driver on a "drunk driving" charge.

In order to establish the true normal values for RT and C% a large number of people would have to be checked. Any person whose values fell outside of these normals would then be declared as dangerous. The subject's NORMAL would be of no interest except in the original issue of the license.

This article has been written to offer some food for thought in an effort to make the highways a safer place to travel.

THE TRUTH ABOUT SIDE EFFECTS

It would be difficult to name a major drug with no side effects . . . no response other than that for which it is prescribed. Sometimes side effects may be beneficial. More often, they are merely undesirable. In some instances, they may be serious enough to force the physician to choose whether the therapeutic value of the drug more than offsets the unwanted reaction. But again, this is essentially a matter of professional judgment. The responsibility of the manufacturer is to do everything possible to minimize unwanted reactions. And at the same time, he is absolutely obligated to provide full information about a product, so that the doctor can make his own professional judgment in the treatment of patients. — John T. Connor, President, Merck & Co., to American Hospital Association, Sept. 18, 1962.



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William B. Steen, M.D.

Your Board of Directors had their first meeting of the new year June 9. The main consideration of the meeting was the committees of the Association. Each committee was considered with regard to the hold over membership which provide continuity of operation. Every effort was made to appoint new and young members of the state organization to places on the committees to provide new blood. This phase of our work is an important part of our organization and needs the loyal, devoted and dedicated support of the membership. In the event you are selected for a place, accept and do your best. The House of Delegates, the Directors and the Committees are the backbone of our organization. Your strength is their strength and the future of Arizona medicine.

The subject of our political action activities, which is vested in a state organization called Armpac, was discussed. The AMA counterpart is called Ampac. These are purely political action groups. They have no party affiliations. They are interested in candidates only inasmuch as a candidate supports our political philosophy, and oppose them when they are against us. Not whether he is Republican, Bircher, Democrat or extreme leftist. Our group has a great deal of work to do this year. All the doctors of Arizona and their wives are potential members. Armpac's job is to sell them membership in Armpac and Ampac.

There is a complete separation of the work of this committee and our state office. They operate as a separate unit even to separate legal advice. This committee points toward the elections of 1964.

Our most important work, as I write this letter, for the remaining year is our legislative program, which is organized and functions under the name of "Operation Hometown." Many of the doctors and their wives have been active in their area and county organizations. General Chairman — Sub-Chairman responsible for a Speakers Bureau, Material Distribution, Congressional Contacts, Letter Writing, Newspaper, Radio and TV, and Enlisting Allies, are perfecting their committees. Every effort is being made to set up a solid and permanent organization that will function in the Fedicare program of the King Anderson bill, or HR 3920, before Congress in the Ways and Means Committee and for future programs.

It is reported that the Bill HR 3920, (King Anderson) Fedicare will be brought before the Ways and Means Committee sometime late in the summer for hearings. We hope that our county and our area organizations will be functioning full blast by this time to be effective and do the most good. We anticipate that an enormous amount of literature and materials will have been distributed throughout the state — that the people will have information, not only from this source but from speakers, the newspaper, television and radio, and that a flood of letters will go to our Congressmen, and to the members of the Ways and Means Committee, telling them that their folks back home are opposed to Fedicare. A successful Arizona campaign against King Anderson Bill, HR 3920 — Fedicare, will take the unstinted help, cooperation and hard work of all of the doctors of Arizona. With every doctor and his wife in the lineup — success will be assured through the loyal and devoted cooperation and help of our Ladies. The auxiliary is playing a prominent part. They are with us. Never before have they given so freely of their time and energy.

We have the framework of our organization. To complete it we need the help of every Doctor and his Lady in the state of Arizona.

Elsewhere in this issue, on page 45A, a complete list of names and addresses of our Congressmen and members of the Ways and Means Committee will be found to expedite the writing of letters.

William B. Steen, M.D.
President

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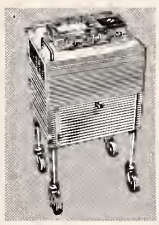
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Company "N"	35 50	$14,763.50 $18,502.50	$4,592.25 $4,472.75	$59,054.00 $74,010.00	$18,459.00 $17,981.00
Company "M"	35 50	$14,198.50 $17,788.25	$4,027.25 $3,758.50	$56,794.00 $71,153.00	$16,199.00 $15,124.00
Company "NY"	35 50	$13,730.75 $17,466.75	$3,559.50 $3,437.00	$54,923.00 $69,867.00	$14,328.00 $13,838.00
Company "E"	35 50	$13,507.00 $17,482.25	$3,335.75 $3,452.50	$54,028.00 $69,929.00	$13,433.00 $13,900.00

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God Healed Them

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In this day of modern medical miracles it behooves us all to remember this simple statement. We live in the day of scientific wonders; of artificial kidneys and dacron aortas; of cardiac surgery and mechanical pacemakers; of transplanted kidneys and corneas.

It sometimes seems as if these wonders, these medical and surgical marvels, were created by the hand of man alone. In the quiet of our contemplations following the successful outcome of a complex case, however, we realize that we were not working unaided.

The physician of today must guard against the temptation to assume alone the credit for his skill and ability. He must avoid the temptation "of vanity and self reference which accompanies great and even small reputations."

Let us all remember not the statement of the Russian cosmonaut who said that in his flight through space he was unable to detect any hint of the presence of the Allmighty.

Rather, as physicians, let us recall the words of Ambrose Paré, "I dressed the wounds, God healed them."

Robert F. Lorenzen, M.D.
Editor

ARIZONA MEDICINE

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CONTRIBUTIONS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Material submitted for publication in ARIZONA MEDICINE should conform to the following policies:

1. Manuscripts, including references or bibliography, should be typewritten, double-spaced, on one side of the paper only, and the original and a carbon enclosed.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

3. Although the Editors try to catch inaccuracies, the ultimate responsibility is the author's.

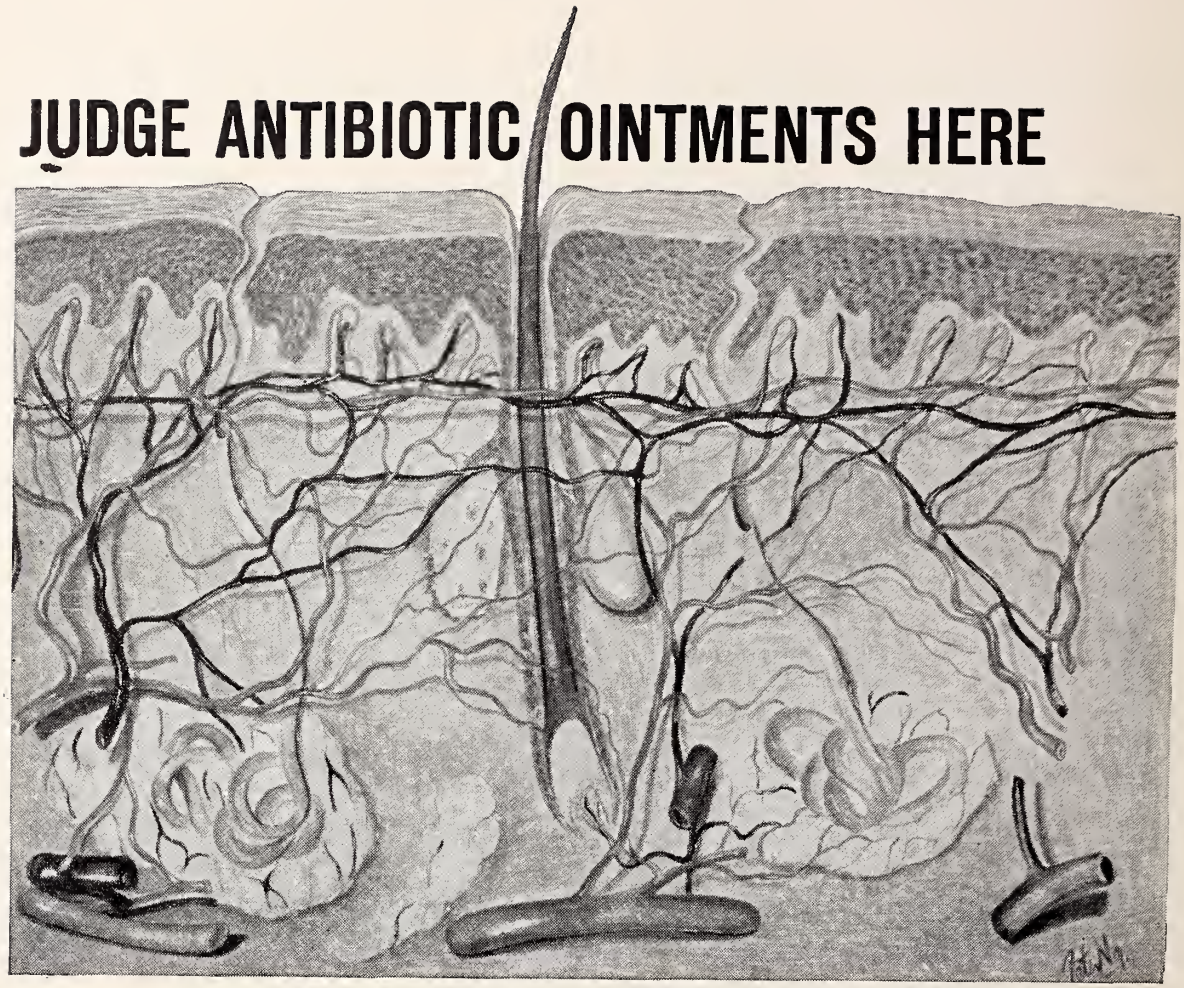
4. Articles are accepted for publication only if they are contributed exclusively to this Journal. Ordinarily, contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.

5. The Journal reserves the right to edit all material.

6. Reprints will be supplied to the author at printing cost.

Editorials of Arizona Medicine are the opinions of the authors and do not necessarily represent the official stand of The Arizona Medical Association, Inc. The opinions of the Board of Directors may be sought in the published proceedings of that body.

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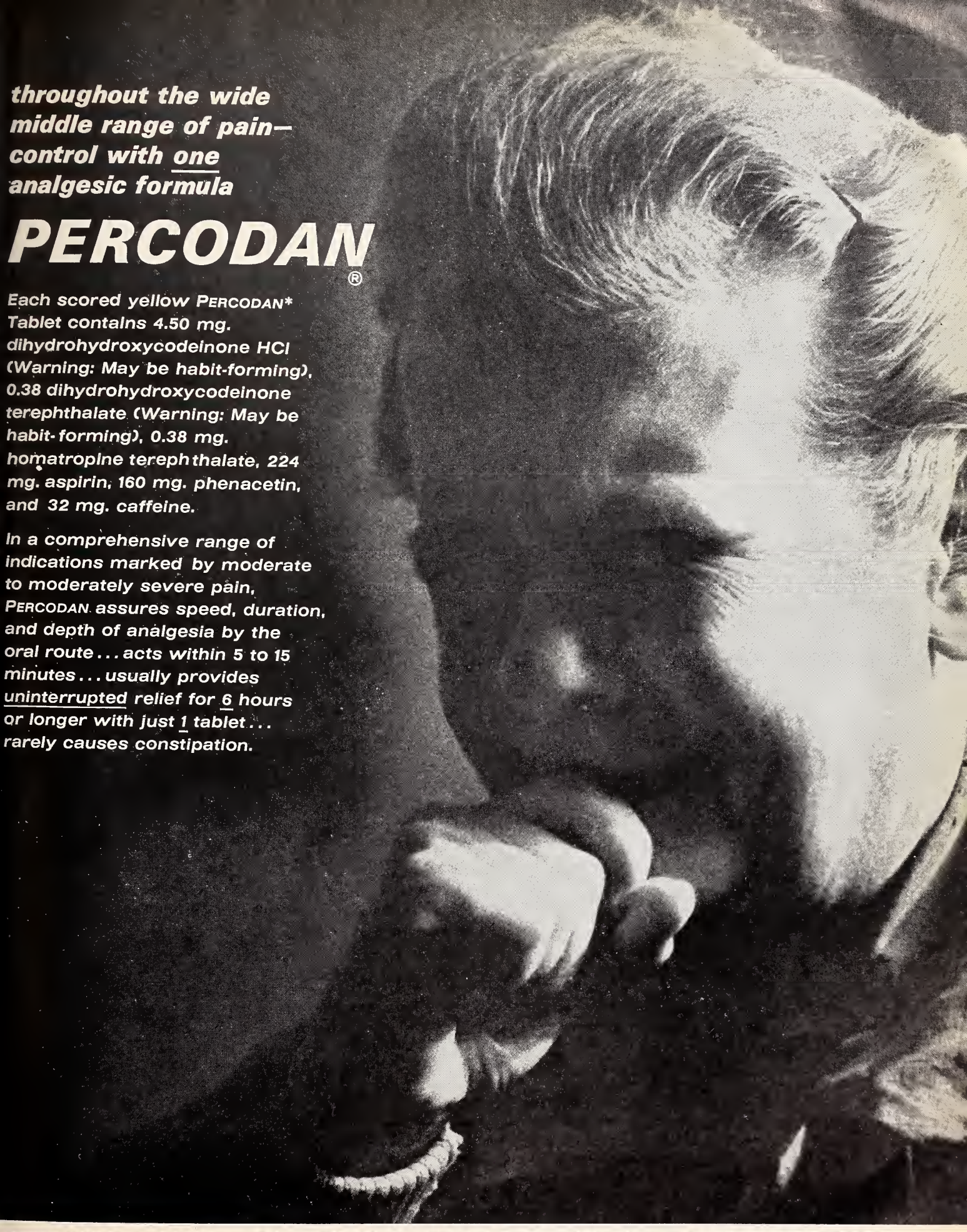
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1. Asher, L. M.: The Choice of Anticholinergic Drugs in the Treatment of Functional Digestive Diseases, Amer. J. Dig. Dis. 4:260-275 (April) 1959.

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1. Ford, R. A., and Blanchard, K. P.: J.-Lancet 78:185, 1958.

Precaution: Occasionally, mild salicylism may occur, but this responds readily to dosage adjustment. In the presence of severe renal impairment, care should be taken to avoid accumulation of salicylate and PABA. Supply: Bottles of 100 and 500 enteric-coated tablets.

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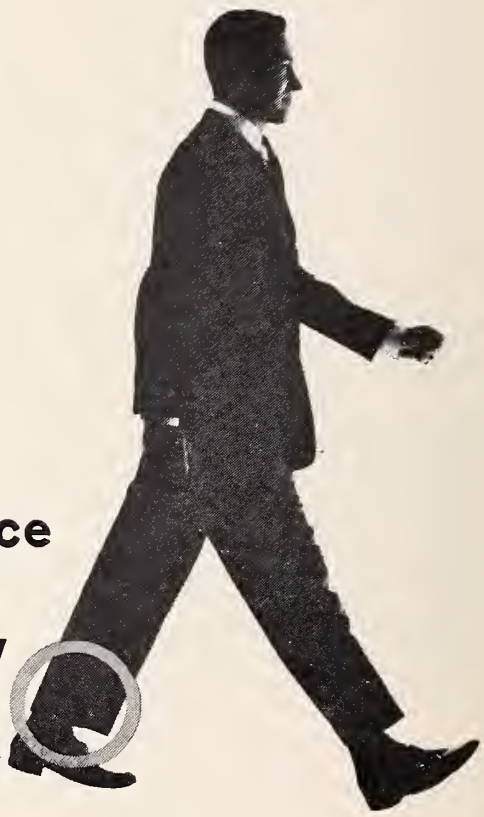
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reduces inflammation eases pain

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Side Effects: Side effects are rare. If they occur, discontinuation of the drug is recommended. *Composition:* Each tablet contains trypsin 68%, chymotrypsin 30%, ribonuclease 2%, equivalent in proteolytic activity to 20 mg. of crystalline trypsin. *Compatibilities:* There are no known incompatibilities. Other medications may be given with Orenzyme if indicated. In infection, appropriate antibiotic therapy should be used concurrently. *Dosage:* Adequate dosage is important. Initially 2 tablets q.i.d. When Orenzyme is administered concurrently with parenteral trypsin, or for maintenance dosage, 1 tablet q.i.d. is recommended. *Supplied:* Bottles of 48 and 500 red, enteric coated tablets. *U. S. PATENT NO. 3,004,893

References: 1. Lichtman, A. L.: Delaware M.J. *33*:11; 1961. 2. Coleman, J. M.; Vaughn, A. M.; Annan, C. M., and Caserta, J. A.: South. M.J. *53*:1467, 1960. 3. Tuttle, E.: Exper. Med. & Surg. *17*:210, 1959.

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Merrill E. Speelman, M. D.

1918—1963

IT IS with a deep sense of loss that the friends, colleagues and family feel at the recent death of Merrill E. Speelman. Doctor Speelman died suddenly on Feburary 7, 1963 while enroute to Phoenix, from his home in Willcox, for a vacation.

"Moe" as he was known by many, was a 1943 graduate of Ohio State University School of Medicine where he also interned and later became a resident.

Until he moved to Willcox in 1955 to establish a general practice, Doctor Speelman had served in the U. S. Navy and Marines for 10 years and as the Medical Officer in Charge at the Hopi General Hospital at Keams Canyon, Arizona.

While a practicing GP in Willcox, Doctor Speelman reported the first case of a human to be bitten by a rabid bat. He had a particular interest in cases of this sort and became vitally interested in Parathion Poisoning. Doctor Speelman had a very extensive practice in obstetrics utilizing the teachings of natural childbirth.

Doctor Speelman was a member of the Cochise County Medical Society, ArMA, AMA, AAGP and the Medical Society of the U. S. and Mexico. He is survived by his widow, Jane, one son, Jack, and three daughters, Nancy Jane, Sally Anne and Jennifer Lynn.



in arthritis: vitamins are therapy

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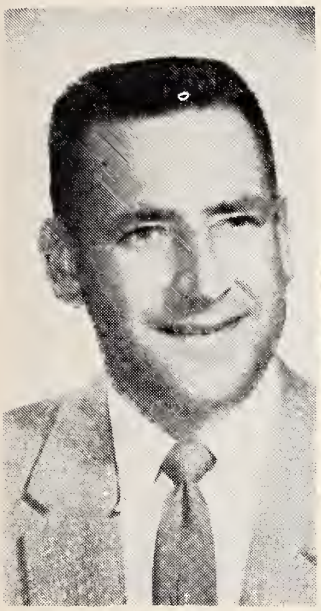
WARNING SYMBOL ADOPTED

The American Medical Association has announced a new universal symbol which will tell anyone rendering emergency care to a person who is unconscious or otherwise unable to communicate that its wearer has a special physical condition requiring special attention.

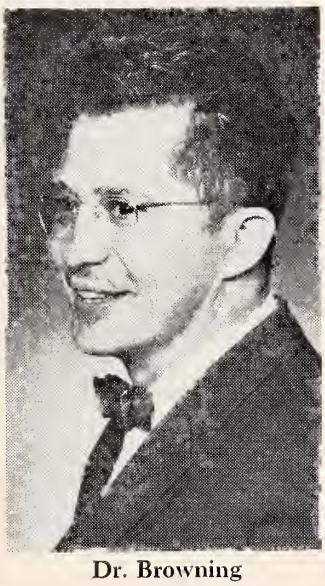


The symbol may be displayed on a wristlet, an anklet, a medallion around the neck or elsewhere. The symbol will be a sign that there are vital medical facts on a personal health information card in the bearer's purse or wallet or on an alerting device.

This should be of great help to patients with diabetes, glaucoma, drug allergies, etc. We believe patients should be encouraged to display the symbol when it is generally available. Further information may be obtained from the Department of Health Education, AMA, 535 North Dearborn Street, Chicago 10, Illinois.



Dr. Lyle



Dr. Browning



Dr. Ochsner

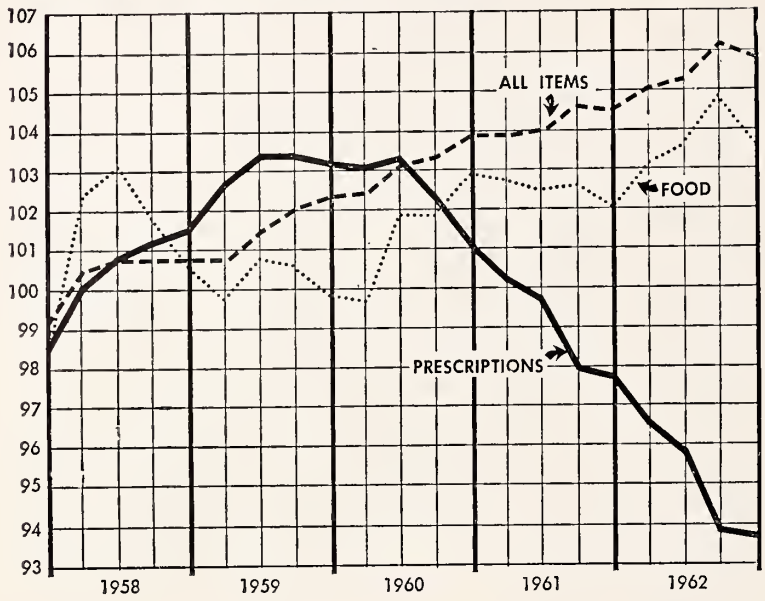
YUMA COUNTY MEDICAL SOCIETY
1963 OFFICERS

President of the Yuma County Medical Society for 1963 is Doctor William R. Lyle. Doctor Lyle came to Arizona in 1954 and has been practicing in Yuma since that time. The vice-president is Doctor Ellis V. Browning who located in Yuma in 1958 after being in Springerville for 10 years. Doctor Albert J. Oschner II is the secretary-treasurer and a comparative newcomer to Yuma having been settled there since 1961.

Special projects of the Society include annual athletic examinations in the surrounding high schools, an annual seminar which is presently in the planning stages and intensive programs for both Salk and Sabin polio vaccine in Yuma County and in neighboring San Luis, Mexico.

The Yuma County Medical Society was organized in 1933 and its membership has grown to 27. It represents the towns of Somerton, Wellton and Yuma. The Society was host for the Annual Meeting of The Arizona Medical Association, Inc. in 1957.

Retail Prescription Drug Prices Down



Consumers are paying consistently lower prices for prescription drugs, while the cost of living generally continues to rise, U. S. government figures show. A comparison of retail drug prices with the prices of food and with all commodities for the past five years shows that drug prices began to drop in 1960 and have continued downward ever since, reaching a new low at the end of 1962. Other prices have followed an upward trend over the same period. (Source: U. S. Bureau of Labor Statistics, Consumer Price Index. Base, 1957-59 = 100. Distributed by Pharmaceutical Manufacturers Association.)

AWARD PRESENTED TO MARGARET McMAHON

Margaret McMahon, Managing Editor of *Arizona Medicine* from September 1962 to May 1963, has received a first place award in the Magazine Edited by Women Division at the annual convention of the National Federation of Press Women recently held in Indianapolis, Indiana. Our congratulations to Margaret for helping to make our Journal a winner.

Board of Medical Examiners

THE Board of Medical Examiners of the State of Arizona, at a regular meeting held Saturday, April 20, 1963, issued certificates to practice medicine and surgery in this State, to the following doctors of medicine:

ABRAHAM, JR., John Theodore (Anes), 767 W. Pioneer Dr., Glendale 3, Calif.

ADAMSON, Richard Fred (GP), Florence Medical Center, Florence, Ariz.

AIDEM, Howard Philip (Or), Shriner's Hospital for Crippled Children, Greenville, South Carolina.

ARONOFF, Morton (P1), Suite 12C – 2406 E. Elm St., Tucson, Arizona.

ATKINSON, James Russell (NS), Univ. of Wash. Sch. of Med., Div. of Neurosurgery, Seattle, Washington.

BARBE, Don Paul (ObG), Good Samaritan Hosp., 1033 E. McDowell Rd., Phoenix, Arizona.

BARTON, JR., Morris (P1), 3258 W. Main, Apt. 3, Houston 6, Texas.

BELGRAD, Richard (R), 926 E. McDowell Rd., Phoenix, Arizona.

BERKOWITZ, Richard (GP), Davis Monthan AFB Hosp., Tucson, Arizona.

BOATWRIGHT, Donald C. (U), 218 E. Stetson Dr., Scottsdale, Arizona.

BOCK, Gustavus Denton (Or), 1757 Pacific, Long Beach 13, California.

Born, Ernst Edward (GS), Maricopa County Gen. Hosp., Phoenix, Arizona.

Brumfield, II, Thomas Jefferson (GP), 1044 N. Sheridan, Tulsa 15, Oklahoma.

Cahill, Jr., John Edward (GP), 3614 N. 15th Ave., Phoenix, Arizona.

Carroll, John Joseph (GP), Winsted, Minnesota.

Clarke, George Murray (GP), Good Samaritan Hospital, Phoenix, Arizona.

Cutshall, Roger Ackard (GP), Grantsburg, Wisconsin.

deBruin, Clayton Herbert (Anes), Univ. of Oregon Med. Sch., Anes. Dept., Portland, Oregon.

Delehanty, Edward Joseph (P), 724 Metropolitan Bldg., Denver 2, Colorado.

DePaoli, Jr., Frank James (Or), Cardinal Glennon Hosp., St. Louis 4, Missouri.

Dioguardia, Jeremia (GP), 1410 - Third Ave., New Brighton, Pennsylvania.

Doty, Chester Arthur (D), 1729-35 D. Whitney Bldg., Detroit 26, Michigan.

Eddy, Richard Lowell (I), U.S. Navy Med. Corp., 12-A Ironwood MCB, 29 Palms, California.

Ellis, Roberg Haig (I), V. A. Hospital, Tucson, Arizona.

Emmett, George Earl (Anes), 712 N. Washington Ave., Dallas 10, Texas.

Errico, Frank John (OPH), 95 Washington Ave., Suffern, New York.

Ettleson, Abraham (NS & N), 2500 E. Van Buren St., Phoenix, Arizona.

Fishman, Aaron Edward (A), 6618 Woodland Ave., Philadelphia 42, Pennsylvania.

Fladen, Jerome Dauby (Oph), 3729 Warrensville Ctr. Rd., Shaker Heights 22, Ohio.

Forester, David Monroe (I), V. A. Hospital, Albuquerque, New Mexico.

Garcia, Hector Lawrence (GP-C), 7256 Eli Drive, Tucson, Arizona.

Gassaway, Franklin Drennan (S), Gulf Building, Pittsburgh, Pennsylvania.

Gelardin, Edward Steven (P), P.O. Box 38, Glen Oaks, New York.

Gorman, Thomas Leo (Oph), Wills Eye Hospital, Philadelphia 30, Pennsylvania.

Greely, Robert Lionel (Pd), Los Angeles County Hospital, Los Angeles, California.

Hackethal, Clemens August (I), 2100 Madison Ave., Toledo 2, Ohio.

Harless, Jay Bruce (GP), 16 North Hibbert St., Mesa, Arizona.

Harrison, Harlon Webster (Path), 5624 Madra Avenue, San Diego, California.

Hedrick, John Gordon (GP-GS), 517 Adams, Wray, Colorado.

Helm, Albert Joseph (Anes), 1949 - 21st Avenue, Greeley, Colorado.

Jarrett, Lewis Ellsworth (P), 2942 North 46th Avenue, Phoenix 31, Arizona.

Kandell, Howard Noel (PD), 4510 USAF Hospital, Luke AFB, Arizona.

Kartub, Mark Giles, Good Samaritan Hospital, Phoenix, Arizona.

King, Elmer Sylvester Anthony (GS), 403 Med. Arts Bldg., 3700 - 5th Avenue, Pittsburgh 13, Pennsylvania.

Koch, Harvey Bert (S), V.A. Hospital, 300 E. Roosevelt Rd., Little Rock, Arkansas.

Learn, Marshall LeRoy (GP & PH), 229 Main, Hamburg, New York.

Levine, Robert Sheldon (GS), V.A. Hospital, Tucson, Arizona.

List, Sr., Ellis Worthington (GP & OPH), P.O. Box 157, Bristolville, Ohio.

Longfellow, Don Woodward (Oph), 926 E. McDowell Rd., Phoenix, Arizona.

McNutt, Jr., Frank Hamilton (GP), P.O. Box 407, Ford City, Pennsylvania.

McProuty, Joseph Richard (R), University of W. Va. Med. Ctr., Morgantown, West Virginia.

Mailliard, Robert Eloy (GP-S), 315 W. 5th Avenue, Storm Lake, Iowa.

Marbury, Jr., William Berry (S), Box 608, Fort Bayard, New Mexico.

Mariea, Donald James (S-GP), 117 W. North Street, Fostoria, Ohio.

Metcalf, Boyd Hendren (GS), 812th Medical Group, Walker AFB, Roswell, New Mexico.

Meyer, Martin Henry (I), Thomas - Davis Clinic, Tucson, Arizona.

Minter, Donald Lee (GP), 429 Parkside Dr., Camp Hill, Pennsylvania.

Montgomery, James Gordon (S), 6400 Prospest, Kansas City, Missouri.

Moore, James Patrick (GP), 911 - 4th Avenue, Ford City, Pennsylvania.

Moore, William Joseph (PH), 1815 Spruce St., Apt. 205, Berkeley 9, California.

Mullon, David Alan (I), 5620 S. Wilshire Dr., Tucson, Arizona.

Neuharth, Paul Henry (GP), 15030 Seventh Street, Victorville, California.

Newton, Louis Moreland (I), 926 E. McDowell Road, Phoenix, Arizona.

Olsson, Paul Bryant (GP), 207 E. 6th St., Lexington, Nebraska.

Phillips, Oscar Melvin (OR), 1200 North State St., Los Angeles 33, California.

Pinto, Joseph Charles (AM-OM), Disp. Marine Corps. Air Station, Yuma, Arizona.

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Rayl, Donald Frederick (R), 510 S. Kingshighway, Mallinckrodt Inst. of Radiology, St. Louis, Missouri.

Reilly, Emmett Bernard (PATH), 13953 Whiterock Dr., La Mirada, California.

Rind, Rudla (GP), 6 North Michigan Avenue, Chicago 2, Illinois.

Robinson, Lloyd Wayne (I), 1834 Gilpin St., Denver 18, Colorado.

Rodawig, Sr., Donald Floyd (GP), 608 E. Lake Street, Spirit Lake, Iowa.

Santiago, Miguel (Anes), 16 Deer Creek Woods, St. Louis 24, Missouri.

Sargent, Leland Edmund (R), Foote Memorial Hospital, East Avenue, Jackson, Michigan.

Schneider, Marvin Charles (GP), 326 E. Sixth Street, Rushville, Indiana.

Schocket, Lee Irwin (I-C), 1608 North Norton Avenue, Tucson, Arizona.

Shapiro, Jacob Behr (OBG), 1351 Tabor Rd., Philadelphia 41, Pennsylvania.

Shaw, James Raymond (I), University of Arizona, Tucson, Arizona.

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Zee, Maurice L. (Pd), 3344 W. Peterson Avenue, Chicago 45, Illinois.

Flying Physicians Meet

The eighth annual national convention of the Flying Physicians Association will be held at the Hilton Inn, Aurora, Illinois, from August 18 through the 23rd according to Doctor L. D. Beck of Phoenix, who is the association's Arizona state chairman. Doctor Beck also serves as a vice president and member of the board of directors of the national organization. Doctor Beck said that approximately 800 persons connected with the international organization will participate in the six-day program. Arizona is represented by 21 practicing physicians. Members from 49 states, Canada and Mexico are expected to fly with their families to the convention site.



In Sprains, Strains and Muscle Spasm, 'Soma' Compound

numbs the pain...not the patient

A potent analgesic and a superior muscle relaxant

1. A sprain or fracture is not a big clinical problem—but it does hurt. And if there is housework to do and kids to mind, the patient needs something to numb the pain.

2. A.P.C. compounds have limited usefulness; and the patient can buy them without your prescription. Unfortunately, most of them are too mild to be effective for sprains—and more potent products too often make the patient feel 'dopey'.

3. 'Soma' Compound is ideal in these cases. Since it contains both 'Soma' (carisoprodol) and acetophenetidin it is both a potent analgesic and a superior muscle relaxant; it also contains caffeine to offset any drowsiness *("numbs the pain...not the patient").*

4. Why not try 'Soma' Compound? Dosage is 1 or 2 tablets q.i.d. For more severe pain, try 'Soma' Compound + Codeine. Dosage: 1 or 2 tablets q.i.d.

5. Hypersensitivity to carisoprodol may occur rarely. Codeine may produce addiction, nausea, vomiting, constipation or miosis.

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carisoprodol 200 mg., acetophenetidin 160 mg., caffeine 32 mg.

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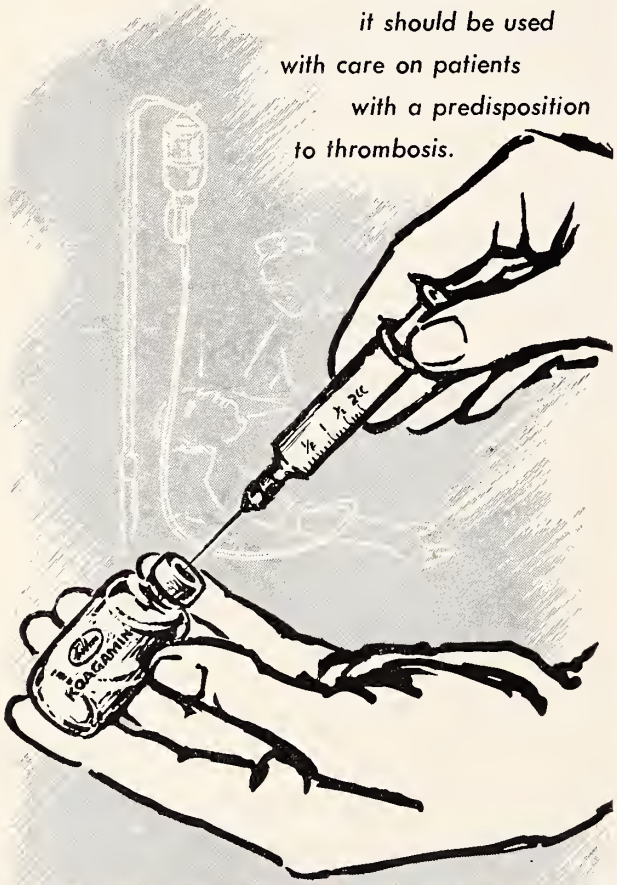
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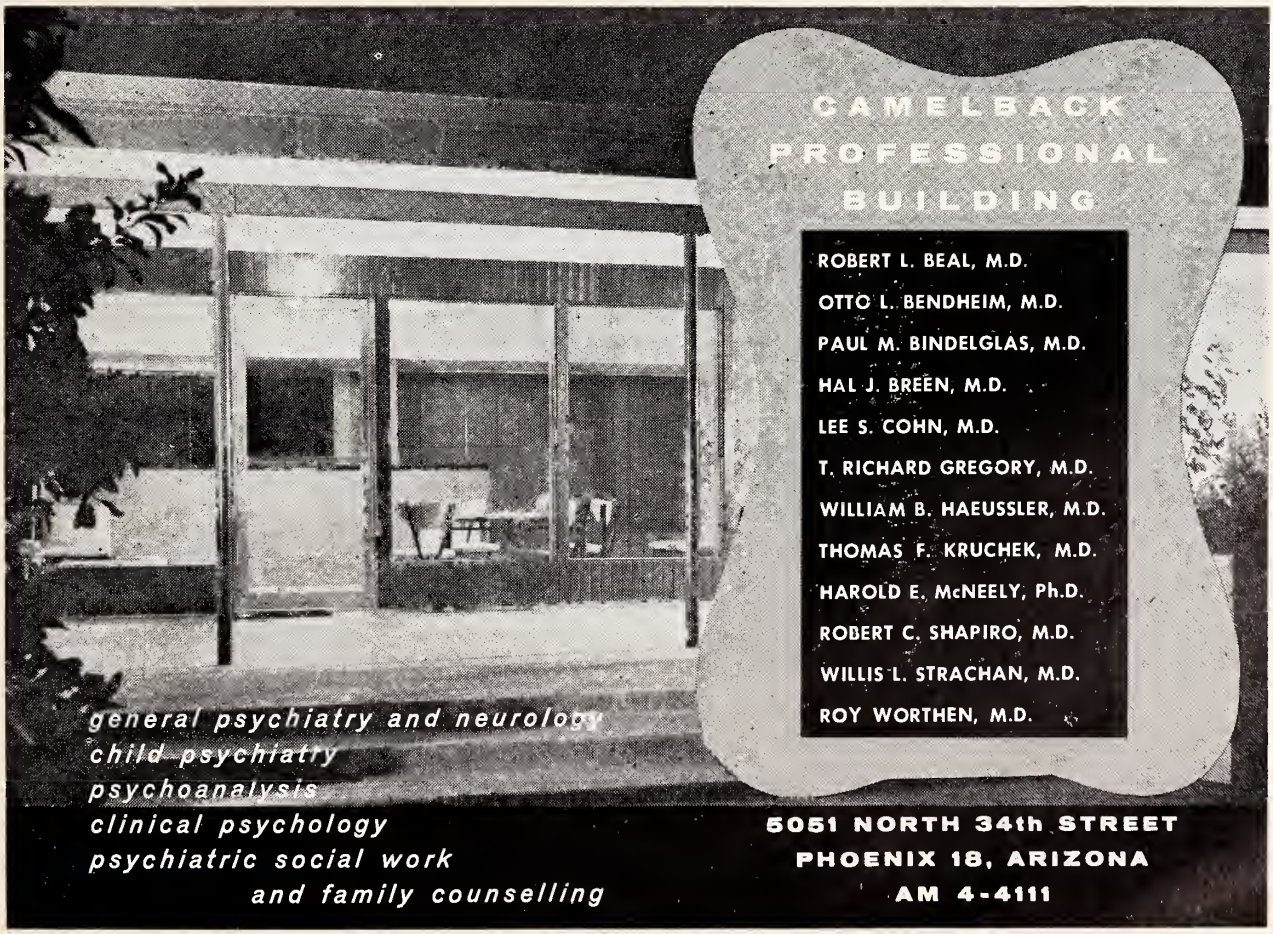
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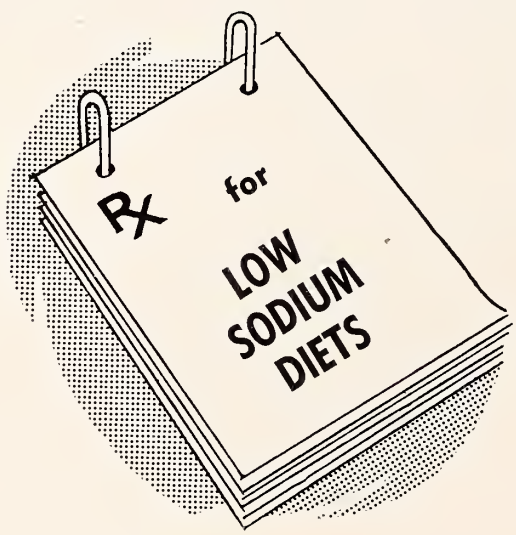
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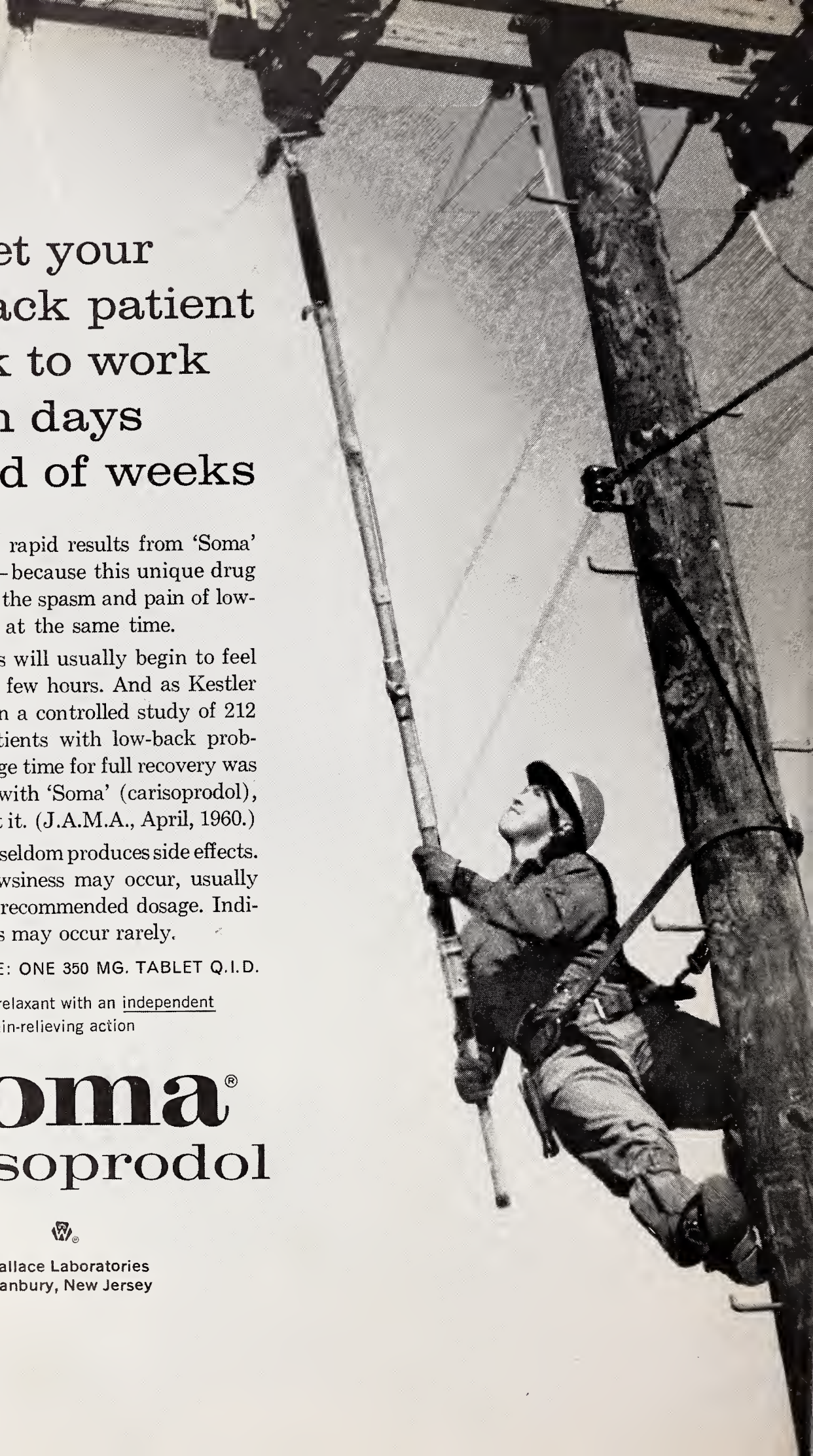
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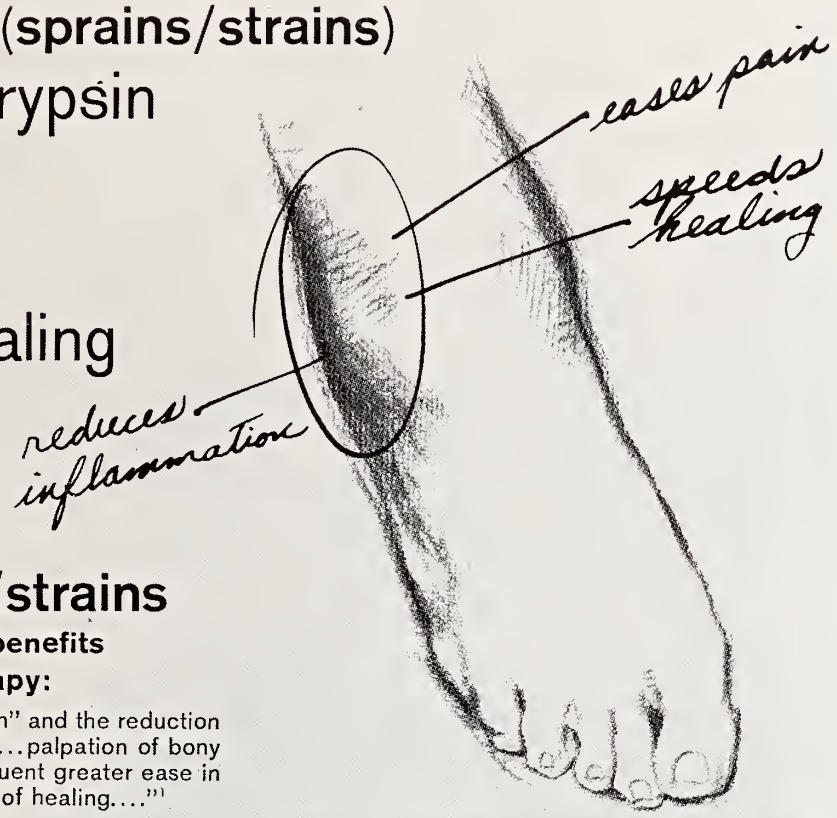
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Compatibilities: There are no known incompatibilities for Parenzyme [trypsin] or Orenzyme. Other medications may be given with these preparations, if indicated. In infection, appropriate antibiotic therapy should be used concurrently.

References: 1. Lichtman, A.L.: Delaware M. J. **33**:11, 1961. 2. Lichtman, A. L.: Ann. New York Acad. Sc. **68**:196, 1957. 3. Golden, H. T.: Clin. Med. **2**:583, 1955. P-2384/63 7/63

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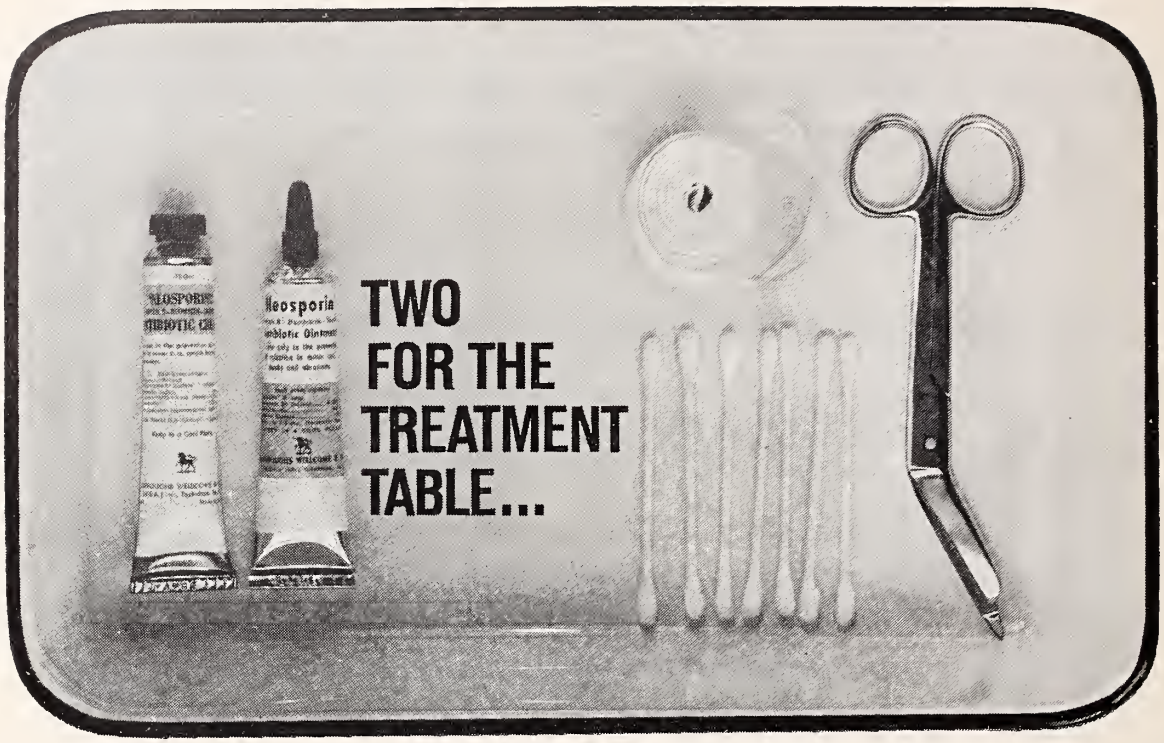
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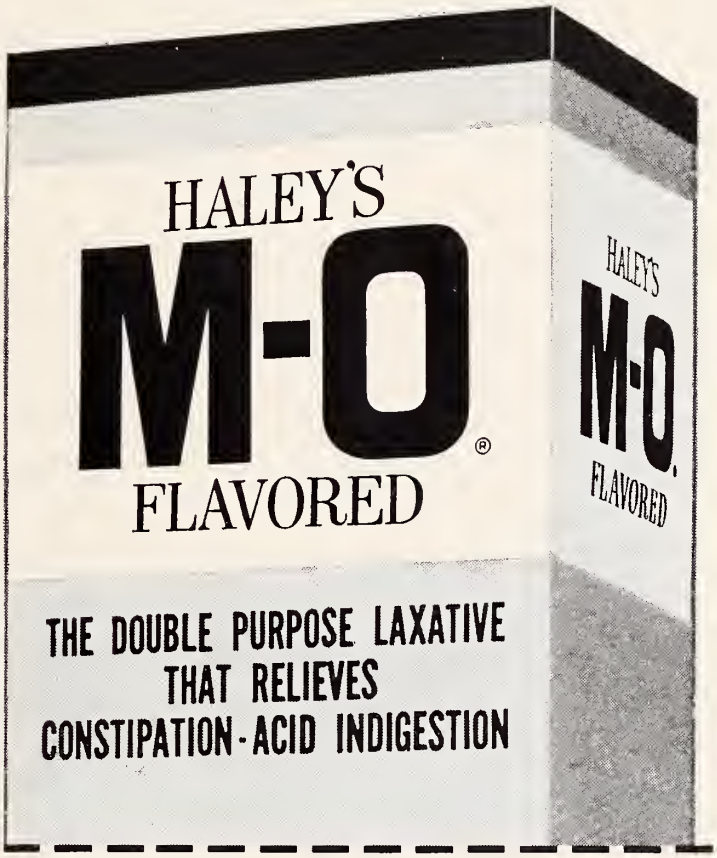
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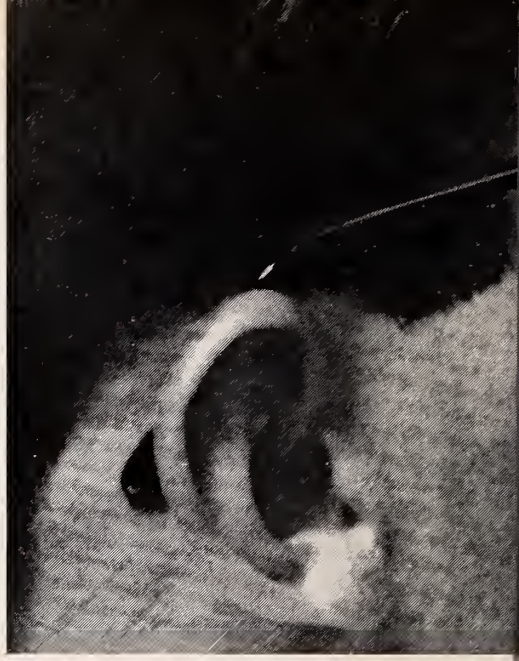
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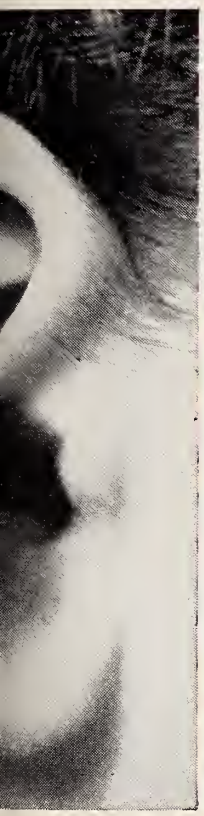


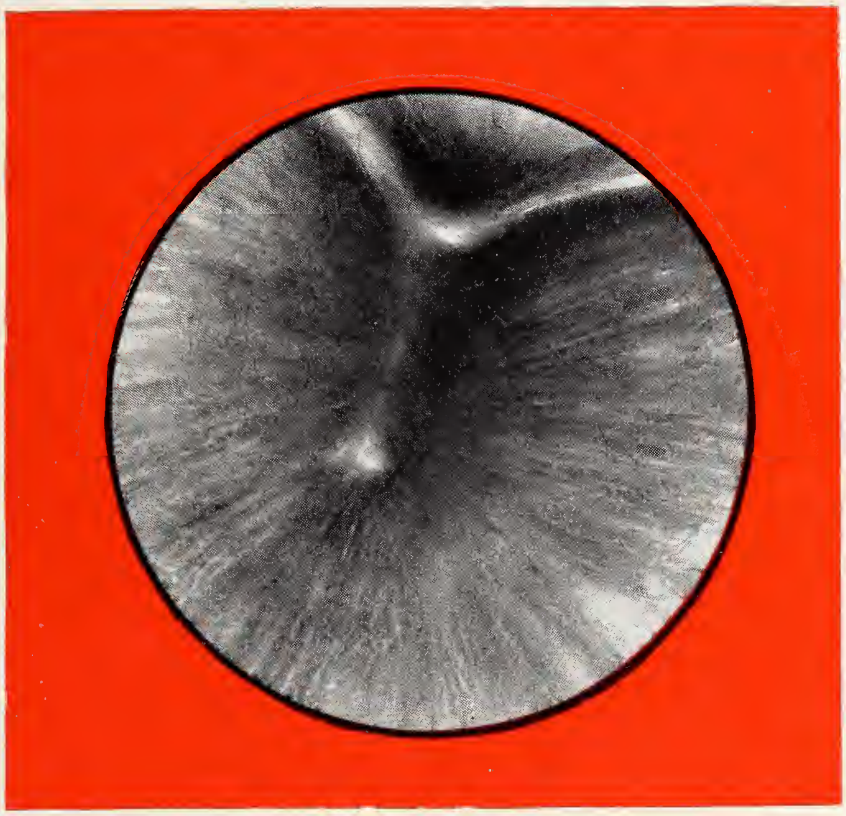
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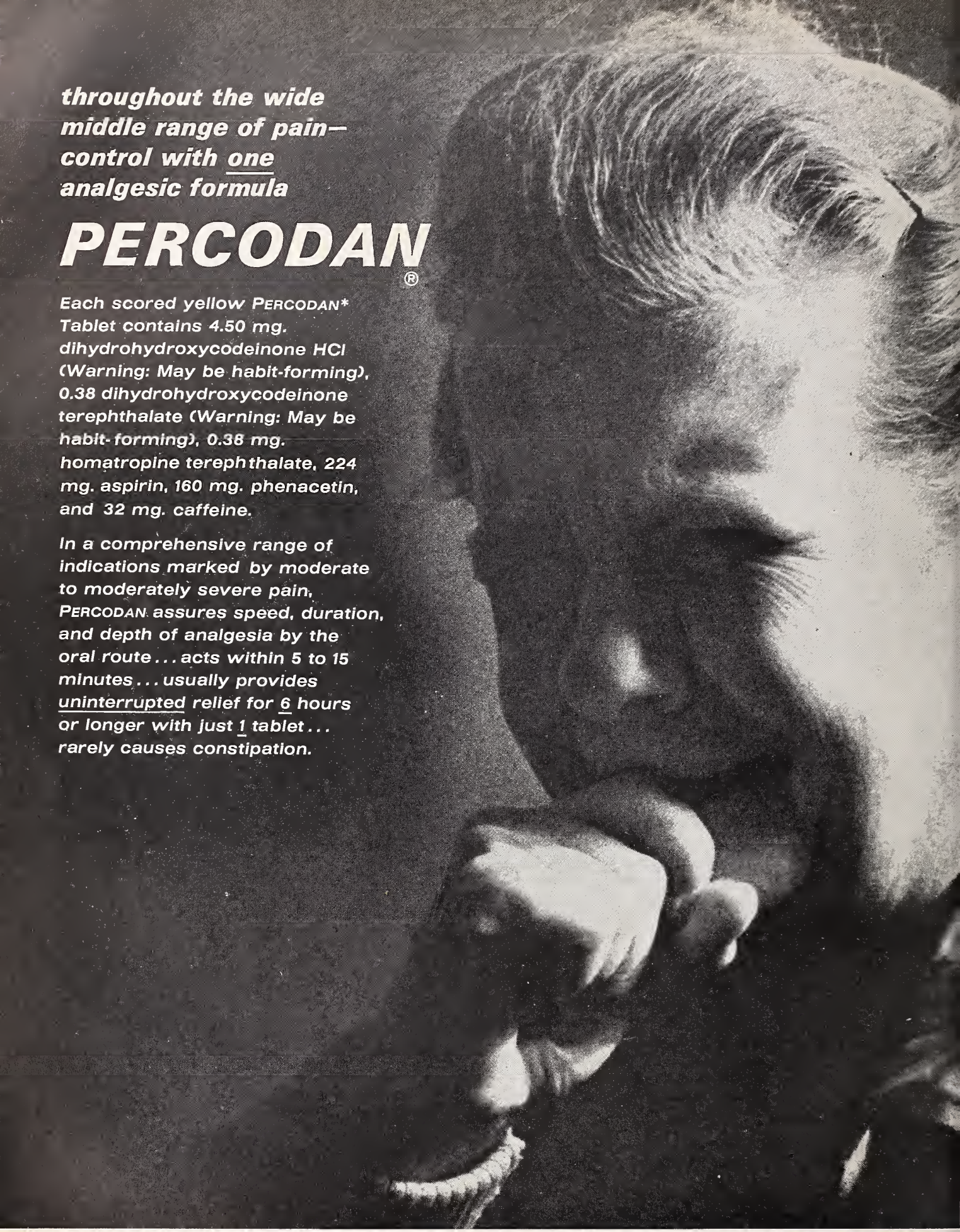
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Resume of June Meeting

Meeting of the Scientific Assembly Committee of The Arizona Medical Association, Inc., held Sunday, June 30, 1963, in the Central Office of this Association, Suite 211, U-R Building, 4533 North Scottsdale Road, Scottsdale, Arizona, convened at 10:08 A.M., W. Albert Brewer, M.D., President-elect, Chairman, presiding.

Minutes

It was regularly moved and carried that the minutes of the meeting of the Scientific Assembly Committee held February 24, 1963, be approved as printed and circulated among the membership.

Assignments & Appointments

Arthur R. Nelson, M.D., of Phoenix, was appointed Assistant Chairman to the committee for the term 1963-64. Charles E. Henderson, M.D., of Phoenix, Secretary of the Association, was appointed Secretary to the committee for the term 1963-64.

1964-65-66 Annual Meeting Locations and Dates

Doctor Henderson reported the action of the Board of Directors or ArMA in its meeting held June 9, 1963 (See Vol. 20, No. 8, ARIZONA MEDICINE) relative to the location and dates of the Annual Meetings of this Association for 1964, 1965 and 1966, for the edification of the committee. They are as follows:

1964 — San Marcos Hotel, Chandler, Arizona — Wednesday, April 29 through Saturday, May 2, 1964.

1965 — Pioneer Hotel, Tucson, Arizona — Wednesday, April 28 through Saturday, May 1, 1965.

1966 — Safari Hotel, Scottsdale, Arizona — Wednesday, April 27 through Saturday, April 30, 1966.

Note: The arrangements for the meeting to be held in Scottsdale at the Safari Hotel in 1966 are contingent upon the hotel's completion of additional facilities which will adequately care for the commercial exhibitors and other details of the meeting.

73rd Annual Meeting — 1964

The following recommendations were made for the approval of the Board of Directors of this Association:

1. That the basic format of the meeting remain the same as that in 1963.
2. That a Luau Dinner, preceded by reception, be scheduled and held Wednesday evening, April 29, 1964, commencing at 7:00 P.M.
3. That an old-fashioned "Shore Dinner", preceded by reception, be scheduled and held Thursday evening, April 30, 1964, commencing at 7:00 P.M. with attendance limited to doctors of medicine and their guests.
4. That the President's Dinner Dance be scheduled and held Friday evening, May 1, 1964, at 8:30 P.M., preceded by the President's Reception at 7:30 P.M.

Scientific Exhibits

The committee reviewed a letter from Mead Johnson Laboratories dated May 9, 1963, over the signature of Thomas C. McPherson, M.D., Western Area Medical Director, relative to the establishments of its Aesculapius Award program. Under the program, the author of the best scientific exhibit shown at the Annual Meeting is presented with an appropriate certificate and a cash prize of $200.00 The winning exhibit is to be selected by a committee of the Association and the role of Mead Johnson Laboratories will be limited to providing the certificate and the award funds.

It was regularly moved and carried that we accept the Aesculapius Award program as presented by Mead Johnson Laboratories.

It is strongly recommended that all scientific exhibitors be urged to provide knowledgeable personnel for their exhibits at all times during the Annual Meeting which will be taken into consideration in selection of the winning exhibit.

Annual Scientific Paper Award

It was regularly moved and carried that we discontinue an award for a scientific paper to be read during the Annual Meeting; however, the committee will receive scientific papers presented for review and recommends that a notice relative thereto be published in ARIZONA MEDICINE.

Woman's Auxiliary

It was regularly moved and carried that Mrs. Clare W. Johnson, President, Woman's Auxiliary to The Arizona Medical Association, Inc., be invited to attend meetings of the Scientific Assembly Committee as an Ex-officio member.

Doctor Brewer indicated he would contact Mrs. John E. Schramel, Program Chairman for the Thirty-Fourth Annual Meeting to be held in conjunction with the meeting of ArMA in Chandler, to assist them in making appropriate arrangements for that meeting.

American Academy of General Practice

Doctor John S. Carlson, of Phoenix, reported that the 1964 Annual Meeting will receive twenty-four (24) hours of Category 1 Credit of the American Academy of General Practice.

Specialty Society Guest Orator Use

It was regularly moved and carried that the use of guest orators by the Specialty Group Societies continue to be assessed $150.00 each and that they be specifically so notified in invitations issued for their participation.

Publicity Chairman

The Committee appointed its chairman, W. Albert Brewer, M.D., President-elect, as publicity chairman for the 1964 Annual Meeting.

Committee Membership Attendance

It was regularly moved and carried that the Chairman review attendance of the committee members for the past three (3) years and those who have not attended committee meetings be recommended replaced with individuals who will attend, offering their assistance in the make-up of the Annual Meeting program.

Charles E. Henderson, M.D.
Secretary



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*Blanchard, K., and Ford, R. A.: Clin. Med., 3:961, 1956.

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John P. North, M.D.

Palliative Chemotherapy for the Cancer Patient

John P. North, M.D.

A resume' of the current status of cancer chemotherapy with interesting notes on the developmental history of the field. Also injects a most timely note of caution to those who may consider chemotherapy too lightly or too enthusiastically.

Cancer chemotherapy has been receiving an enormous amount of publicity lately, and papers about it appear on almost every scientific program. Items have also appeared in the lay press so that patients are demanding chemotherapy. Much of this is based on the wishful hope that we may obtain an agent that will be truly effective on a large number of cancers. One can not report this at the moment, although there is some encouraging news and hope that there may soon be a real breakthrough.

I want to begin by calling attention to the fact that my title is "Palliative Chemotherapy." None of this business at the present moment supplants current methods of surgery or irradiation in its various forms. None of it, in other words, has been to date curative. I am also going to exclude entirely from my discussion two forms of chemotherapy, one of which, the use of hormones, has been established for some years as an extremely useful, valuable form of cancer palliation in certain forms of hormone-dependent tumors. Secondly, I exclude any discussion of steroid therapy only to warn that with some chemotherapeutic agents in vogue at the present time, it is exceedingly risky to give steroids concomitantly. As pointed out by people in Dr. George Moore's laboratory, concomitant steroid therapy may make the patient less able to tolerate chemotherapy.

I think we should repeatedly go back and examine the rationale for cancer chemotherapy, and to realize that the thinking behind it has some wide loopholes in it. It was based on an overwhelming desire to find some means of augmenting our present methods of combating cancer. From the experimental laboratory, we had clear-cut evidence that small and presumably young metastases seemed to be particularly susceptible to certain anti-tumor chemicals. Much of this work involved the Walker-256 Sarcoma in which it was noted that nitrogen mustard, given promptly after the development of hepatic metasasis, caused their disappearance. This was in experimental animals and in experimental tumors.

Presented at the Annual Fall Clinical Congress of the Arizona Chapter, American College of Surgeons, Hotel Superstition Ho, Apache Junction, Arizona, November 16-18, 1961.

Director, American College of Surgeons.

Secondly, there is evidence that young proliferating cells are particularly susceptible to many chemicals. The first demonstration of this came about during World War II in connection with studies of nitrogen mustard and in the effort to develop an antidote or a therapy for the mustard gas casualties which were anticipated during the war but fortunately never occurred. Some very fundamental work was done at that time on the effects of nitrogen mustard in the body. The cytoxic effects on young proliferating cells, particularly those of the bone marrow and the gastro-intestinal mucosa, were noted and gave rise to the hope that we might have an agent to combat young, rapidly proliferating, cancer cells.

From the clinical standpoint, our interest in chemotherapy stemmed partially from the demonstration of tumor cells floating in the peripheral blood. I would call your attention to the fact that this also is an observation made many years ago. In 1934, Dr. Eugene Pool and a collaborator reported on a series of cases, mostly advanced carcinoma of the stomach, in which they were able to demonstrate microscopically tumor cells in the blood stream. Subsequently, these studies have been confirmed by Engel, Moore, Cole, Turnbull, and many others who have unquestionably demonstrated showers of tumor cells in the peripheral blood. This prompts the thought that if the blood stream could be purged or the cancer cells destroyed soon after they find lodgment, we would have a valuable weapon. Unfortunately, up to the present there has been no good correlation between the demonstration of tumor cells in the peripheral blood and the prognosis of the patient. The best series of cases observed over a long time has been reported by Engel of Stockholm. Of his five year survivors after surgery, 51 per cent had cancer cells demonstrated in their blood at the time of original surgery and yet lived for five years. There is additional clinical evidence that residual tumor cells remain in the operating field following extensive operations, particularly on the neck, lung and the breast, but there has been no correlation between the finding of these tumor cells in the operating field at the close of an operation with the incidence of local recurrence.

This problem of chemotherapy has challenged the interest of investigators for many, many years. At the Memorial Hospital in New York many thousands of chemicals were screened years ago for possible valuable tumorocidal agents. The problem has been attacked in the last few years in a monumental crash program under the auspices of the Cancer Chemotherapy National Service Institute, which is a subdivision of the National Institute of Health, and backed by enormous Federal funds. The group at Bethesda can screen 50,000 agents a year. The agents which the chemists and the pharmaceutical people develop some of which are variations of other drugs and some of which are brand new ones, are put first through a series of observations in animals, first as to their anti-tumor effect and then, if these are promising, through a second series of toxicity studies, to see if they are suitable and safe enough for use in humans. A very small fragment of the original 50,000 emerge from these animal experiments for the third phase of a clinical trial. These trials are conducted on a wide scale but very carefully, using randomized control studies at first only on far advanced cases for whom no other treatment whatsoever is suitable. The drugs are placed in the hands only of competent observers who have experience in the field of chemotherapy, are familiar with toxic agents and able to make truly objective evaluations. At the present time, there are three classes of drugs that seem to offer possibilities. First, there are the alkylating agents of which Nitrogen Mustard is the progenitor and of which there are a large number of other agents, such as ThioTEPA, Phenylalanine mustard, etc. A second group are the antimetabolites which interfere with the normal metabolism of the cell. At the present moment, the chief focus of interest is upon 5-Fluorouracil and its derivative, FUDR, although others in this group are being carefully investigated. Thirdly there are the antibiotics of which Actinomycin D has been investigated most thoroughly. It seems unlikely that much will develop from the antibiotic group. These are highly toxic agents when used in cancer chemotherapy.

There are certain pitfalls that everyone should bear in mind. All of these agents are toxic. If they weren't toxic, they would not be effective. Some are much more toxic than others. ThioTEPA, for instance, is relatively safe to use. With some of these agents, if leukopenia becomes apparent, stopping the drug will permit the white blood cell level to be restored spontan-

eously. In others, when one notes a leukopenia, it is already too late and stopping of the drug fails to alter a lethal progression.

Some of these agents are dangerous if used concomitantly with X-ray, although in others a combination of X-ray therapy and a chemotheraplatic agent is being tried at the present time and seems effective in certain instances. One should know before using any of these agents whether it is safe to combine them with X-ray therapy. The combination of these agents with major surgical procedures may also introduce new hazards. I had the privilege of being chairman of a group study in 21 Veterans Hospitals a few years ago. We set out with what we knew were probably not very effective but nevertheless safe drugs. We gave Nitrogen Mustard or ThioTEPA in conventional dosage on the day of and for two days following a major resection. We had not gone far in our study before we noted an alarming thing. The early 30-day mortality in the treated cases was two and three times higher than it was in the controls. This difference extended through all the various groups of cases involved in the study. We halted the study until we could discover if there was any bias that had brought this about. We could find no reason except the giving of the drug for the higher mortality. We then reduced the dosage to three-quarters of the conventional scale and early mortality in treated and controls evened out. This made us realize that perhaps we may overplay our hand by giving even a conventional dose of a chemotherapeutic agent coincident with a major surgical crisis. One certainly should not attempt to use any of these agents, without somewhat more than a mere reading acquaintance with their dangers. You know as well as I, that all of the misfortunes and disasters do not creep into the literature. Anyone who intends to use any of these agents should have some personal contact and communion with a clinic or group who have had experience with the particular drug and know where its dangers lie.

There are certain very interesting paradoxes about cancer chemotherapy. A particular agent may work beautifully in animals, but it won't touch human cancer. It may not be effective against animal tumors but it may sometimes help in human tumors. Therein of course lies the weakness of the screen, because drugs that don't work in animals are discarded. And among them may possibly be some that would be helpful in humans. The results with various agents are quite unpredictable. Two individuals with identical tumors may respond differently. Sometimes a patient will respond to one drug and not to another. They may have a favorable response from a given drug and will not respond favorably a second time. If one then shifts to a new drug for the third trial, it may be effective. Moreover, and this is most intriguing, one would suppose that in dealing with cancer one ought to hit patients with both barrels and give them the maximum dosage of drug they can tolerate without dangerous toxicity. But there is increasing evidence that this is not always true and sometimes a smaller dose has a greater anti-tumor effect than the full dosage which the patient might tolerate.

Now what is the balance sheet at the present time? The major breakthrough has unfortunately been in one of the rarest of tumors, chorionepithelioma, in which Methotrexate by mouth has produced spectacular results. Secondly, results have been encouraging in melanoma. But this is a tumor which is notably unpredictable, and in which five year results are practically meaningless. One must wait some time before verifying the apparently good results in melanoma but at the present time the results have been encouraging in approximately 50 per cent of cases when a perfusion method is used.

In the breast, there have also been encouraging results. In Dr. Warren Cole's study in Chicago they now have a series of 75 controls and 75 nitrogen mustard treated cases treated more than five years ago, . . . this is the longest follow-up I am sure that anyone has. The survival rate is 73 per cent in the controls and 83 per cent in the group treated with nitrogen mustard. In a group study of which Dr. Rudolph Noer of Louisville is the chairman, there have been similar encouraging results in treatment of cancer of the breast using Thio-TEPA, as an adjuvant to surgery. Their series has not been observed as long as Dr. Cole's, but they have noted a similar increase in treated survivors at periods from two to five years.

In the ovary, there has been recent confirmation of the fact that Chlorambucil combined with a moderate dose of X-ray therapy may produce spectacularly good results in widespread carcinoma of the ovary. Again, this is not a common tumor.

There are also encouraging results with varying agents in soft tissue sarcoma, particularly on the extremities where it is accessible for isolated perfusion. Of all the gastro-intestinal tumors, which comprise of course a very large group, the results have only been encouraging in tumors of the colon and rectum. The alkylating agents are not effective against these tumors, of this we are sure. 5-FU and FUDR have seemingly produced some remarkable remissions. The follow-up is not long enough but we seem at least to be making some progress. In cancer of the lung it is fair to say that although there has been objective evidence of remission of the tumor, it is doubtful that there has been substantial prolongation of life as a result of chemotherapy.

In cancers of the head and neck, there is increasing evidence that although the survival time may not be lengthened, there is in many instances a spectacular relief of pain which to these poor sufferers is eminently worthwhile.

There has been no progress made with cancer of the pancreas or with the usual genito-urinary tumors, with the exception of course of hormones in prostatic cancer, and there is nothing encouraging to report for squamous cell cancers.

We have grounds then not for jubilant rejoicing, but at least for hope that within a moderately short time, there may be breakthroughs, and that more effective drugs will be found, and perhaps better and improved methods of utilizing them. Although urged by patients and by popular opinon to use chemotherapy, I would urge each of you to have patience that the situation will clear a little more, and for the present to reserve chemotherapy to drugs that you personally know how to handle safely, and perhaps to cases where no other therapy can be helpful.

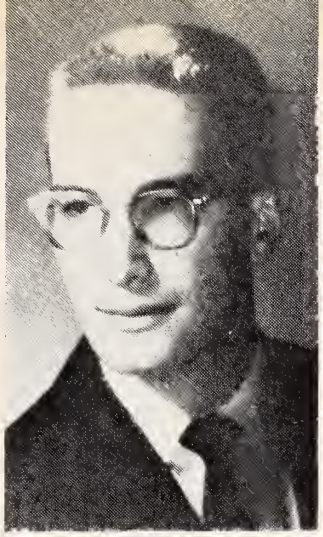
Approved Medical Schools Now Number 87

The American Medical Association's annual report on medical education shows that two medical schools have been added to the list of accredited institutions during the past year. This brings the total approved medical schools to 87.

The new additions are the University of Kentucky College of Medicine, Lexington, and the California College of Medicine, Los Angeles, formerly the College of Osteopathic Physicians and Surgeons.



nneth K. Keown, M.D.



Charles L. Waltemath, M.D.

Do Antihypertensive Drugs Increase The Anesthetic Risk?

Kenneth K. Keown, M.D.
and
Charles L. Waltemath, M.D.

The fact that so much attention has been paid and so many articles written makes this an interesting and controversial subject. Everyone treating the disease of hypertension and everyone anesthetizing patients taking these drugs should read this article. It is an excellent review of the problem, and it should have a calming effect on some of the almost hysteria with which this area has been treated in the past.

INTRODUCTION

Reports have appeared in the literature concerning the increased risk attendant to administration of anesthesia to patients who have received antihypertensive therapy.[2,3] Clinical experience indicates that these patients can usually be safely anesthetized. We believe that the patient's underlying disease, rather than their preanesthetic drug regimen, is of greater importance as concerns anesthetic risk.

We propose, here, to review the pathophysiology of hypertension, the antihypertensive drugs, and the currently accepted mechanisms of cardiovascular homeostasis during anesthesia. Techniques of anesthesia which are acceptable to the patient, provide optimum surgical conditions and have the greatest possible margin of safety, should then become evident.

Pathologic Physiology of Hypertension

Hypertensive cardiovascular disease is a multi-system malady, complicated by converging pathologic processes which perpetuate and aggravate each other.

The cellular mechanisms involved in the production of systemic hypertension are not settled. Early in hypertension, before any structural changes are present, the blood vessels are hyperreactive to stimuli.[13]

This is evidenced by the cold pressor test, emotional episodes and an exaggerated response to infused norepinephrine. Two possible mechanisms of neurogenic hypertension are apparent: first, increased frequency and intensity of sympathetic discharge to the arterioles, or secondly, increased reactivity of the vascular smooth muscle to efferent nervous discharge.

The biochemical mediator of vasoconstriction is norepinephrine, which is stored in body tissues and present at all post-ganglionic sympathetic nerve endings. When large amounts of this pressor substance are present in the tissues, the vascular reactivity is decreased, conversely, when tissue levels are depleted the vessels become more reactive.[13] This is the most probable explanation of the exaggerated pressor response to exogenous norepinephrine after sympathectomy or pharmacologic tissue amine depletion.

It is interesting to note that sodium depletion in hypertensive patients decreases vascular reactivity, whereas sodium depletion in normotensive subjects increases vascular reactivity.[12]

Hypertension associated with renal disease ap-

Presented by Dr. Keown at Tucson Medical Center, Tucson, Arizona, on May 11, 1962.
Department of Surgery, Section of Anesthesiology, University of Missouri School of Medicine, Columbia, Missouri.

pears to be due to three concomitantly active but separate factors: 1) decreased destruction of the pressor substance angiotensin I, 2) sodium retention with hypervolemia, and 3) increased vascular reactivity. After a period of time, permanent reno-vascular changes occur, the process becomes self perpetuating in a vicious spiral, and the resultant hypertension then becomes irreversible.

The clinical manifestations of hypertension are not primarily due to the elevated blood pressure. Pathologic alterations in the heart, kidneys, brain and the eyes produce the symptom complex known as "hypertension". These abnormalities are probably more dependent on an elevated diastolic blood pressure than to systolic elevation, in a ratio of three to one. (3:1.)

Heart. The normal heart has a functional reserve of about three hundred per cent (300%). The continued strain on the left ventricle by a persistent systemic blood pressure elevation reduces this reserve and produces a variable symptom complex. It is estimated that one-half of individuals with persistant hypertension will develop left ventricular failure. According to Friedberg[5], up to ninety per cent (90%) of hypertensive patients will have some degree of coronary artery disease. Some will have angina pectoris, and myocardial infarction may occur.

The stress of exercise in hypertensive patients has been studied. Patients with hypertension, but without cardiac symptoms had no evidence of myocardial decompensation after exercise. Patients with cardiac symptoms due to hypertension had an elevated oxygen consumption and decreased cardiac output at rest, and during exercise they had an elevated pulmonary wedge pressure and a failure of the cardiac output to rise normally. The reaction of hypertensive patients to exercise bore no relation to the absolute value of the blood pressure.[18]

Kidneys. Secondary renal involvement in hypertension takes the form of arteriolar nephrosclerosis. As the pathologic changes progress they become indistinguishable from chronic glomerulonephritis. In early hypertensive nephropathy there are no specific findings except occasional hematuria. In late stages albuminuria, persistent hematuria, fixed urinary specific gravity, rising blood urea nitrogen and serum creatinine all indicate advanced irreversible renal changes.

Eye. Retinal vascular changes may reflect the systemic vascular changes. Arterial spasm, arteriovenous nicking, hemorrhages and exudates appear, in approximately that order, as permanent vascular changes, and tissue necrosis occurs. In late stages, papilledema occurs, apparently due to increased cerebrospinal fluid pressure.

Brain. Symptoms referable to the central nervous system usually manifest only as headache, or may appear acutely, as a cerebrovascular accident or hypertensive encephalopathy. It has been stated that a blood urea nitrogen of greater than sixty milligrams per cent after a cerebrovascular accident contraindicates intensive antihypertensive therapy.[14]

Cerebral vascular resistance is increased in both essential and fixed hypertension. Cerebral blood flow is normal in essential hypertension, but reduced in fixed hypertension.[8]

Primary Vascular Lesions. Acute vascular lesions in hypertension, (necrotizing arteritis, fibrinoid necrosis and smooth muscle necrosis) are usually the result of reno-vascular hypertensive disease. The chronic lesions are intimal proliferation, medial hypertrophy and healed necrosis. The roles of electrolytes, hormones and elevated blood pressure in the development of vascular lesions are unquestioned. The mechanisms involved in the production of these lesions are unsettled.

Myocardial depression and a rapid redistribution of blood volume may occur during anesthesia. The rapid reflex changes necessary to maintain cardiovascular homeostasis are markedly impaired by the vascular lesions of advanced hypertension. These vascular changes also prevent the desired response following the usual antihypertensive drug regimens.

Pharmacology of the Antihypertensive Drugs

The drugs used as therapy for elevated systemic blood pressure may be classified into two general groups: 1) those which alter autonomic tone, and 2) the natriuretic agents. Many drugs, with diverse pharmacologic effects comprise the former group. The actions may be central adrenergic blockade (Rauwolfia); ganglionic blockage (inversine); peripheral adrenergic blockade (guanethidine); inactivation of humoral pressor substances (hydralazine); stimulation of depressor mechanisms (veratrum); enzyme inhibitors

(alphamethyl dopa); and amine depletors (Rauwolfia guanethidine). In the natriuretic group, the anti-hypertensive activity is a result of alteration in fluid and electrolyte balance.

The sympathetic blockade produced by the anti-hypertensive drugs results in a relative overactivity of the parasympathetic nervous system.

Rauwolfia alkaloids. (Reserpine, syrosingopine). The action of reserpine is complex, involving the intermediary role of serotonin centrally, and norepinephrine depletion from both central and peripheral areas (post-ganglionic sympathetic endings, myocardium, and adrenal medulla).[7] This results in loss of reactivity at these sites to efferent sympathetic discharge. Amine depletion may occur after only one dose of reserpine, and the stores are replaced slowly over at least fourteen days after therapy has been discontinued.

Controlled clinical trials[6,7] using reserpine indicate that the direct antihypertensive response is not of great magnitude when subjected to critical analysis. Apparently many of the therapeutic successes with this drug in hypertensive patients were the result of a tranquillizing action, due to central serotonin depletion.

Hydralazine. (Apresoline). This drug reduces sympathetic activity, most likely due to inactivation of humoral pressor substances.[2] The doses of hydralazine necessary to produce an effective anti-hypertensive response also produce severe side effects, and in some cases a syndrome resembling Lupus Erythematosis.[6] At present this drug is used primarily in adjunct with reserpine and/or the natriuretic drugs.

Veratrum alkaloids. (Protoveratines). These drugs act by sensitization of baro-receptors of the aorta and carotid arteries, resulting in bradycardia and splanchnic vasodilitation.[7] The margin between therapeutic and toxic dosages is small, thus these drugs have fallen into general disuse in the management of hypertensive patients.

Ganglionic Blocking Agents. (Inversine, hexamethonium). Use of these drugs is attendant with numerous undesirable side effects, as all autonomic ganglia are affected.[7] These drugs reduce vasomotor tone, primarily by affecting the protective cardiovascular reflexes that usually accompany a decrease in cardiac output. There is loss of venomotor activity and a consequent decrease in venous return.[7] There is little actual effect on the arterioles and the total peripheral resistance is unchanged. These drugs produce significant blood pressure reduction, and are used mainly in cases refractory to other therapeutic regimens.

Sympatholytic Agents. (Guancthidine, Bretylium tosylate). These drugs prevent peripheral release of catecholamines at sympathetic effector sites.[2] Essentially they produce a sympathetic ganglionic blockade. These drugs are not adrenolytic, as the reaction to exogenous norepinephrine is either unchanged or increased.[7] Unlike guanethidine, bretylium is thought not to deplete tissue catecholamines. Guanethidine does not deplete brain or adrenal catecholamines. Depletion of other tissues may persist up to seven days after therapy is discontinued.[2]

Natriuretic drugs. At present, these are probably the most widely used antihypertensive drugs. They are often used in combination with one or more of the drugs listed above, and potentiate their antihypertensive action. The therapeutic effect of these drugs is quantitatively similar to, albeit much faster than dietary sodium restriction; indicating that reduction of total exchangeable body sodium is probably the basis for their therapeutic efficacy. They also decrease plasma and extracellular fluid volume[7], and decrease the pressor response to norepinephrine.[2] This latter effect may be the result of extraction of sodium from the vascular smooth muscle, as several days of diuretic therapy are necessary for this effect to occur.

In addition to sodium and fluid loss, use of these drugs is associated with hypokalemia.[7]

Enzyme inhibitor. (alphamethyl dopa). This drug is a decarboxylase inhibitor which interferes with the biosynthesis of norepinephrine.[1] That this is the only mechanisms of its antihypertensive activity is not known. The usefulness of this drug may lie in the fact that it reduces supine blood pressure as well as producing an orthostatic response.

Physiology of Cardiovascular Homeostasis During General Anesthesia

Investigations have supported the thesis that the maintenance of cardiovascular homeostasis during anestheisia is mediated via the autonomic nervous system.[2,15,16,17] Price states that "certain anesthetics appear 'safe' for use only because their direct effects on the myocardium are par-

tially antagonized by bodily reactions, particularly those involving the sympathetic nervous system".[16]

Commonly used anesthetic agents have been carefully studied in the clinic and in the laboratory. The administration of cyclopropane causes a six fold increase in circulating norepinephrine levels.[15] An increase also occurs with diethyl ether, but to a lesser degree. Thiopental, administered intravenously in large doses, liberates norepinephrine from the tissues.[13] Contrawise halothane and nitrous oxide do not produce any detectable elevation of the plasma catecholamine concentration. Sympathetic suppression[9] or lack of efferent response seems to occur with halothane.

The administration of cyclopropane or diethyl ether in animals or man rendered incapable of making a sympathetic response results in reduced cardiac output and hypotension.[16] This cardiovascular depression is not seen in intact subjects and suggests that bodily mechanisms, probably sympathetic in nature, counteract the deleterious effects of these anesthetics. The effects of halothane on the intact and denervated heart of the dog are quantitatively indistinguishable.[11] This suggests a lack of sympathetic response to halothane, and indicates that these adjustments do not occur reflexely but are due to direct sympathetic excitation.

The effect of anesthetic agents on vascular contractility has been studied quantitatively using strips of rabbit aorta.[16] Cyclopropane, chloroform, nitrous oxide and thiopental enhanced the degree of shortening produced by norepinephrine. Ether had little effect, and halothane had no effect or produced relaxation of the rabbit aorta.

The pressor response in humans to exogenous norepinephrine during anesthesia agrees with the above concept.[16]

The effect of anesthetic agents on parasympathetic activity is also of importance. During cyclopropane anesthesia, the absence of tachycardia in the presence of a high level of sympathetic activity indicates an increase in vagal tone.[10] Tachycardia usually accompanies prolonged diethyl ether anesthesia and has been suggested to be due, at least partially, to vagal blockade.[15] Ether also blocks the reflex bradycardia accompanying norepinephrine infusions. According to Price[16], the bradycardia, hypotension, reduced cardiac output and increased central venous pressure occurring with halothane anesthesia can be corrected partially or totally by atropinization. This indicates that some of the cardiovascular depression of this drug may result from parasmypathetic activity. Vagal blockade is not apparent with thiopental.

Risk

Anesthetic tolerance of the untreated hypertensive patient. The induction and maintenance of anesthesia is attendant with rapid alterations in autonomic tone, shifts in blood volume, and reduction in myocardial and vascular reactivity. These all contribute to decreased venous return and tachycardia, with decreased cardiac output and subsequent decreased tissue perfusion.

We believe, and the internists in our institution concur that the early, labile hypertensive, without anatomic vascular disease, is able to tolerate anesthesia.

The patient with fixed hypertension, with anatomic vascular changes, compromised myocardial function and perhaps coronary artery disease, is unable to react rapidly or adequately to cardiovascular stress and thus, cannot maintain circulatory homeostasis.[4] Further, acute cardiovascular deterioration may occur due to superimposed myocardial infarction or heart failure, produced by anesthetic induced myocardial depression and/or reduced cardiac output. Hypovolemia, hypoxia or marked alterations in airway pressures may further aggravate such circumstances.

It is obvious that the patient with long standing hypertension is a difficult anesthetic risk. Minimal drug doses must be used. Anesthesia must be conducted slowly and smoothly, and "crash inductions" should be avoided. Severe myocardial derangements, such as infarction or malignant arrhythmias may occur during episodes of hypoxia or due to very deep anesthesia. Prolonged apnea or airway obstruction may result in acute failure of the left ventricle.

Anesthetic tolerance in the patient with treated hypertension. We are concerned with the hypertensive patient who has had a response to antihypertensive therapy. Most of these drugs act by sympathetic depression, at various sites, primarily by removal of or interference with the action of norepinephrine. The natriuretic drugs, by removal of sodium from the vascular smooth muscle cells, decrease the response to norepinephrine. Thus, the cardiovascular response to the

normal sympathetic mediator is decreased or abolished. This also produces a relative increase in parasympathetic tone.

We are often confronted with administering drugs which depend on an intact sympathetic nervous system for maintenance of circulatory homeostasis to patients with a depressed sympathetic nervous system, as a result of antihypertensive therapy. It is obvious that grave problems arise when the anesthetized patient is unable to maintain a physiologic cardiac output and adequate tissue perfusion.

Anesthetic Management

We have surveyed three sets of statistics from the University of Missouri Medical Center applicable to anesthesia and the hypertensive patient.

First, the relation of antihypertensive regimen to mortality during anesthesia and surgery, and in the first seven post-operative days; second, the number of inpatients at the University of Missouri Medical Center receiving antihypertensive agents at a specific time; and third, the anesthesia management of obstetrical patients that come to vaginal delivery who have received antihypertensive drugs.

We reviewed the thirty-two post-operative deaths that occurred in the past sixteen months within seven days of anesthesia. Of these patients, four were receiving a chlorothiazide, one Rauwolfia, one guanethidine and one a combination of chlorothiazide and Rauwolfia. We have concluded, that in no instance was the pre-operative drug regimen contributory to the patient's demise.

The medical and surgical inpatients at the University of Missouri Medical Center were reviewed, and we found that sixteen per cent of medical patients were receiving chlorothiazide, and less than one per cent Rauwolfia. Of the surgical patients six per cent were receiving chlorothiazide and none the other agents.

Of the obstetrical patients admitted for vaginal delivery, approximately one-half received chlorothiazide during their pregnancy, and one-fourth came to delivery having received chlorothiazide within the preceding four days. Approximately twenty per cent received general anesthesia, usually cyclopropane, twenty-five per cent received saddle block anesthesia, the remaining were delivered vaginally by pudenal block. There was no morbidity or mortality in the obstetric patients attributable to anti-hypertensive drugs or the choice of anesthetic management.

Intelligent management of the hypertensive patient begins with the pre-anesthetic interview. A careful history should be obtained as concerns neurologic, renal, cardiovascular and occular symptoms. History of anti-hypertensive therapy should be noted, especially the drugs, the dosage and the duration of therapy. The pre-therapeutic blood pressure and the results of the treatment, if known, should be noted. A complete physical examination should be made. Special attention should be directed toward the degree of retinopathy, the clinical cardiovascular status and the blood pressure. Essential laboratory data should include roentgenograms of the chest, electrocardiogram, venous pressure, routaine renal function screening tests, serum sodium and potassium concentrations, and perhaps blood volume determination. In some instances, medical consultation should be obtained, to confirm the physiologic suitability of the patient for the stress of anesthesia, surgery and the immediate post anesthetic period.

The availability of active catecholamines may be determined by the intravenous administration of ephedrine.[2] The action of ephedrine depends upon the release of stored catecholamines at the sympathetic post-ganglionic nerve endings. Ten (10) milligrams of ephedrine is administered slowly intravenously followed by an additional five (5) milligrams dose. If a blood pressure elevation of twenty (20) millimeters of mercury and an increase in pulse rate of ten beats per minute do not occur, effective catecholamine stores are presumably absent.

A negative ephedrine response test strongly indicates that elective surgery should be postponed until tissue catecholamines are restored.

The pre-anesthetic medication must be wisely selected. A belladonna derivative should be included, as the relatively increased vagal tone which occurs in patients on antihypertensive therapy contributes to depression of the normal sinus mechanism of the heart. The use of sedative drugs is desirable in the patient with labile hypertension. Sedatives should be used sparingly, if at all, in the more advanced cases with fixed hypertension.

The choice of anesthetic technique should always be tempered by the concept that the agent with which the anesthesiologist is most familiar

is the safest in his hands. It should be borne in mind that sympathetic blockade will alter the clinical features of hypoxia, and hypercarbia, and depress the homeostatic responses to blood volume reduction and the effects of exaggerated positions.

Crandell[2] has stated that spinal and peridural anesthesia should not be used in patients who have been on natriuretic therapy, as these techniques will enhance the hypotensive effect of the sympathetic blockade. We do not share this concept, but believe that low spinal (saddle block) anesthesia is the technique of choice for all perineal surgery and vaginal delivery in the hypertensive patient.

Halothane, which depresses the cardiovascular system in a manner not physiologically reversed by endogenous norepinephrine, and producing a relative vagotonia, is thought to be additive to the effects of the sympatholytic agents. Halothane can safely be used, as long as overdosage is astringently avoided. Overdosage is easily detectable by careful monitoring.

Cyclopropane anesthesia is attendant with an increase in catecholamine concentration as well as vagotonia. In the absence of catecholamines, or interference with their activity, the vagotonic and cardiovascular depressant actions of this drug are quite marked. Cyclopropane should be reserved for the hypertensive in shock or impending shock.

Diethyl ether anesthesia is associated with an increase in body sympathetic tone, catecholamine mobilization and some autonomic blockade. Ether does not seem to increase cardiac vagal parasympathetic activity as occurs with cyclopropane and halothane. Indeed, there may be a vagal blockade.

Crandell states that nitrous oxide, perhaps combined with ether is probably the agent of choice[2], due to the vagolytic effects of ether. We believe that use of ether is attendant with great risk in patients who have received antihypertensive drugs, especially those of the natriuretic group.

Administration of thiopental in large doses results in an increase in circulating catecholamines, and the activity of the vagus center is maintained. Thiopental in small fractional doses is permissible and indicated, avoiding a prolonged induction phase.

Muscle relaxation is probably best obtained by the use of fractional doses of the depolarizing relaxant succinyl cholinc. However succinyl choline should not be used in the presence of hypokalemia. The effects of ganglionic blockade produced by d-tubocuraine are enhanced by the natriuretic drugs and by several sympatholytic antihypertensive drugs.

The maintenance of adequate alveolar ventilation either by controlled or assisted respiration is mandatory for intra-thoracic and intra-abdominal surgery. The ventilating pressure of the anesthetic circuit must be allowed to return to zero during expiration, so that venous return to the right heart is not impaired. The poor tolerance of these people for even slight degrees of hypoxia is evidenced by their tendency to angina and myocardial infarction.

Summary

Hypertensive cardiovascular disease, the pharmacology of the antihypertensive drugs, and the physiology of cardiovascular homeostasis during general anesthesia have been reviewed.

Our experiences with hypertensive patients during general anesthesia have been evaluated.

We believe that the untreated hypertensive as well as the patient receiving an antihypertensive drug can be safely anesthetized.

Our method of evaluation and anesthetic management of these patients has been presented.

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C. H. Fredell, M.D.

Unusual Lesions Of The Jejunum and Ileum

by

C. H. Fredell, M.D.

In a series of small intestinal surgical problems the most commonly encountered difficulty was intestinal obstruction. The more unusual lesions, pneumatosis cystoides intestinalis, leiomyoma, and mesenteric cyst, are discussed in some detail and case histories presented.

Lesions of the small intestine as a group occur often enough to constitute a significant problem in diagnosis and therapy for the surgeon. Individually a small bowel lesion is seen so infrequently in the average general surgeon's practice that it is considered unusual.

The difficulty obtaining an accurate radiological examination of the small intestine makes the exact diagnosis of a small bowel lesion difficult. More important is the lack of awareness on the part of the surgeon to lesions of the small intestine and the signs and symptoms they may produce.

There have been forty-nine cases requiring surgery for problems of the jejunum and ileum seen by the author from July 23, 1956 to April 1st, 1962. (Fig. 1) A variety of problems have been encountered with seven deaths postoperatively. Six were due to peritonitis and one was due to a myocardial infarct. All of the cases dying of peritonitis had gangrenous intestines or extensive fibrinous peritonitis at the time of surgery.

The usual causes of intestinal obstruction were found in thirty-one cases (Fig. 2). The surgical procedures have been summarized and it is of note that of the sixteen cases that required resection, five died postoperatively; four of peritonitis and one of a myocardial infarct.

Two previously reported cases[5] of intestinal obstruction due to unusual hernia have been seen during the period of this study. One was due to a gangrenous Meckel's diverticulum in an obturator hernial sac and the other was due to a gangrenous volvulus of the ileum in an intersigmoid hernia sac.

A 69-year-old woman who was admitted with the typical signs, symptoms, and roentgen examination of mechanical small bowel obstruction. At the time of surgery the point of obstruction was found at the left obturator foramen. (Fig. 3) The ring of the foramen was incised and a gangrenous Meckel's diverticulum was delivered

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120 West Fine Avenue, Flagstaff, Arizona.

SURGERY OF THE JEJUNUM AND ILEUM
7/23/56→4/1/62
49 Cases

1. Intestinal Obstruction 31
2. Trauma 7
3. Miscellaneous 5
 a. Pneumatosis cystoides 1
 b. Mesenteric cysts 1
 c. Leiomyoma 1
 d. Granuloma-chicken bone 1
 e. Regional enteritis 1
4. Intestinal Diverticulae 6

Deaths 7
 Peritonitis 6
 Myocardial infarct 1

Figure 1.

SURGERY OF THE JEJUNUM AND ILEUM

1. INTESTINAL OBSTRUCTION 31 cases
 a. Adhesions 13
 b. Hernia, external & internal 5
 c. Volvulus 4
 d. Intussusception 3
 e. Malignancy—primary & metast. 3
 f. Mesenteric Thrombosis 2
 g. Atresia 1

 Surgical Procedure
 a. Small bowel resection 16
 b. Enterolysis 13
 c. Bypass procedure 2

DEATHS – resection for gangrene 5
 peritonitis 4
 myocardial infarct 1

Figure 2.

into the abdominal cavity and ileal resection was done.

Preoperatively the exact cause of the small bowel obstruction was not apparent. There were no complaints referable to the obturator nerve or any physical findings of an obturator hernia. Pain along the distribution of the obturator nerve has been described as the Howship-Romberg sign.

Repair of an obturator hernia has been reported to vary a great deal.[12] Lack of available structures with which to close the defect has even prompted the use of wire mesh or cartilage plugs. In this case it was possible to suture a flap of endopelvic fascia across the defect. The contents of an obturator hernia sac have been reported to include omentum, cecum, urinary bladder, fallopian tube or appendix. In this case a Meckel's diverticulum was strangulated in the hernia sac. In a search through the literature which contained over 440 cases[12] no similar case has been found to have been reported. The correct preoperative diagnosis of a strangulated obturator hernia was made in only 25% of the recorded cases.

The second case of unusual intestinal obstruction was in a 69-year-old Navajo man who had the classical symptoms and signs of intestinal obstruction. Radiological examination of his abdomen confirmed this. At the time of surgery there was an obstruction of the ileum due to a large internal hernia sac which was located in the retroperitoneal space behind the sigmoid colon over the iliac vessels and ureter. (Fig. 4) The narrow hernia orifice was incised and 24 inches of gangrenous ileum was delivered into the peritoneal cavity and resected. The hernial sac was completely removed and the defect in the mesentery was closed.

The exact cause of the small bowel obstruction in this case was not apparent prior to surgery. When the internal hernia was found gangrenous bowel was suspected, found, and resected.

Internal hernia should be suspected when a reason for acute mechanical small bowel obstruction is not apparent. Immediate surgical intervention is the rule.

Harrison and Cheek[9] reviewed the literature concerning an uncommon type of internal hernia in the intersigmoid area and reported a case in 1951. They found 26 similar cases reported in the literature. Twenty-three of these cases had surgical therapy with 12 recoveries.

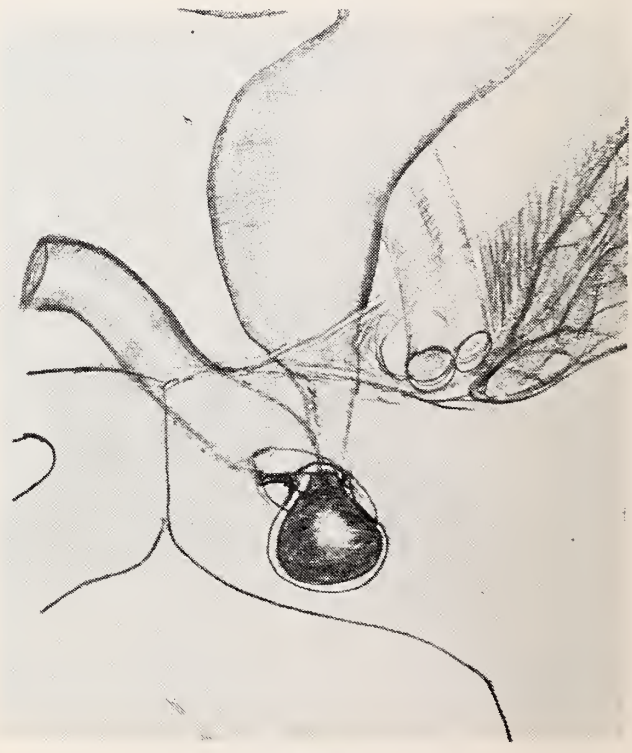


Figure 3.



Figure 4.

The value of a complete examination of the abdominal contents when the peritoneal cavity is opened cannot be over emphasized. This exploration includes examination of the entire small intestine. This was demonstrated in previously reported case:[7]

A 78-year-old man was admitted to the hospital complaining of distention of the abdomen with vague upper abdominal pain of 3-days duration. His past history revealed that he had a known peptic ulcer in the past and took antacids for upper abdominal pain. Examination of the patient revealed noticeable distention over the upper portion of the abdomen with no abdominal spasm. Radiological examination of the abdomen revealed a large collection of subdiaphragmatic free air.

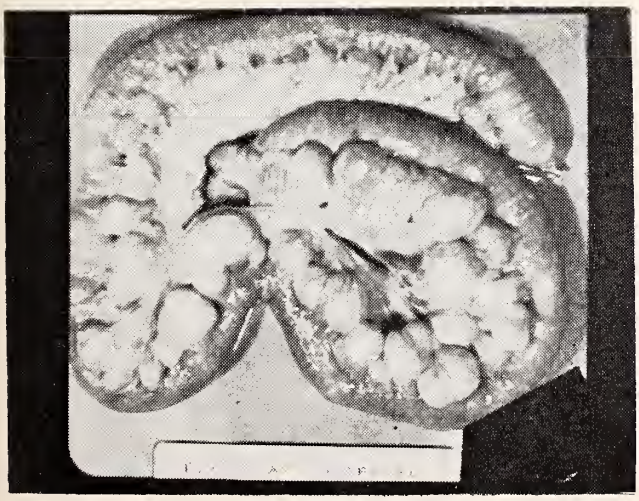


Figure 5.

Barium examination of the stomach, small bowel and colon revealed an area of multiloculated air and two diverticula of the small bowel.

Exploration revealed diverticula throughout the entire jejunum varying in size, located along the mesenteric margin. (Fig. 5) 18 inches from the ileocecal valve there was an area of pneumatosis cystoides intestinalis. (Fig. 6) There was no lesion or stenosis distal to the area of pneumatosis. There was no perforation found in the entire gastrointestinal tract. Small bowel resections were done including all of the diverticula of the jejunum and the area of pneumatosis cystoides intestinalis.

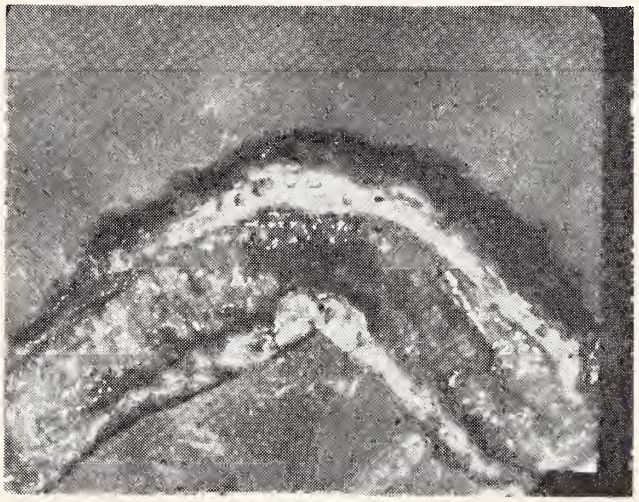


Figure 6.

Concomitant pneumatosis cystoides intestinalis of the ileum and diverticulosis of the jejunum is unusual. When an extensive small bowel resection is done in an elderly patient one might expect digestive difficulties postoperatively. They did not occur.

The first case of pneumatosis cystoides intestinalis to appear in the American literature was reported in 1908 by Finney. Since that time over 230 adult cases have been recorded.[2]

The etiology of this condition is generally accepted as a mechanical one. It is thought that gas under pressure gains entrance into the sub serosal area through an ulcer or rent in the mucosa. Some investigators speculate that the gas can even pass through an intact mucosa. This lesion has been described in the stomach, small bowel, colon and mesentery.

The presence of stenotic lesions of the intestinal tract in 58% of cases of pneumatosis cystoides has been noted by Koss.[10] He noted that the diagnosis of pneumatosis cystoides intestinalis is seldom made preoperatively.

The experience with children with pneumoperitoneum with obscure clinical findings has led to symptomatic therapy with unsatisfactory results. Of the 47 such cases reported in the literature in 1960 only two were alive postoperatively.[4]

The presence of a pneumoperitoneum in a child or adult with no definite diagnosis is indication enough for exploration of the abdomen and correction of the abnormality as soon as the general condition of the patient will permit. If a segment of pneumatosis cystoides intestinalis is found it should be resected.

Case in 1920 reported the first case of diverticulosis of the jejunum that was correctly diagnosed preoperatively and successfully treated surgically.[7]

The common diverticulum of the jejunum is a false one, composed of mucous membrane and located on the mesenteric margin of the intestine. It is thought to be acquired in relation to a weakness of the intestinal musculature where blood vessels enter the intestines.

The presence of complications demands urgent therapy. Perforation of the diverticulum, diverticulitis, hemorrhage, obstruction, incarcerated foreign bodies and neoplasia are all serious problems associated with jejunual diverticula. In the absence of symptoms or complications the therapy is non-surgical. The incidental finding of a diverticulum of the jejunum by roentgenographic means alone is not an indication for surgical therapy. However, if indications are present, the therapy of choice is simple excision or small bowel resection.

The author is unaware of a similar case of pneumatosis cystoides intestinalis associated with diverticulosis of the jejunum in the presence of a massive pneumoperitoneum. The successful treatment by excision of both lesions in a 78-year-old man is also considered unusual.

There have been scattered infrequent reports of mesenteric cysts in the literature. Few authors have gathered much individual experience. Burnett[3] reported a total of 93 cases of mesenteric cysts of the small bowel mesentery in 1950. 25% of these were present in patients under 10 years of age.

A previously reported case[6] of mesenteric cysts in a 5-year-old boy was treated in April of 1958 at the Flagstaff Hospital. He was admitted to the Hospital with bowel distention and physical findings of acute appendicitis. An acutely inflamed vermiform appendix was removed through a McBurney incision. There was minimal peritoneal irritation present. Two large cysts were seen in the vicinity of the appendix at this time. The abdomen was then entered through a generous right rectus incision and numerous mesenteric cysts were found (Fig. 7). A small bowel resection including the attached cysts was done.

This case demonstrates the serendipidity a surgeon may experience. The diagnosis prior to surgery was acute appendicitis. Early acute appendicitis was found. However, more extensive pathology was encountered and successfully treated. The importance of adequate operative exposure in the abdomen cannot be over-emphasized.

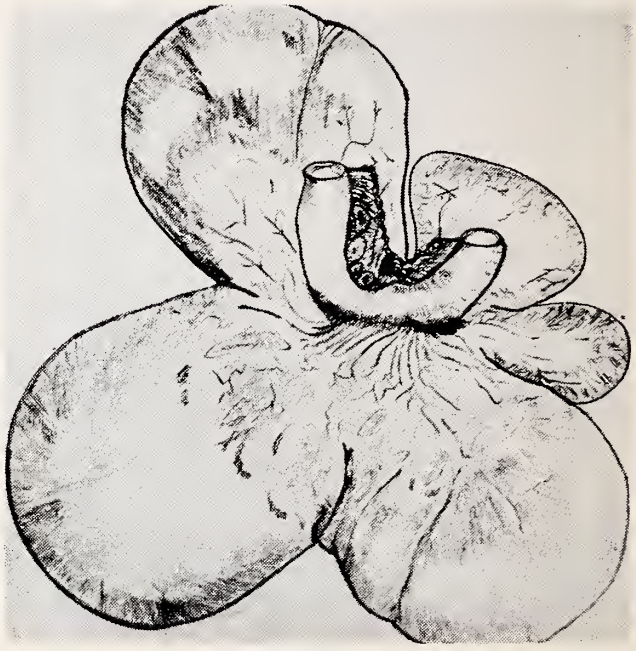


Figure 7.

A mesenteric cyst is congenital in origin and is caused by aberrant embryonic lymph tissue. It develops into a cyst which is filled with clear, serous, or milky fluid. The wall of the cyst is thin and found to be connective tissue lined by endothelium. The cyst grows slowly and painlessly. It is usually found as a freely movable abdominal tumor. The patient generally complains of cramping abdominal discomfort or has symptoms of acute intestinal obstruction.

Tumors of the small bowel are considered to be unusual. While a leiomyoma is one of the most common benign human neoplasms, the finding of this tumor in the small intestine is uncommon.

Oberhelman found 225 cases of small bowel leiomyoma reported in the literature by 1952. He noted that 30% of these tumors were found incidental to autopsy or surgery.[11] Abrams and Hubay reviewed the literature and reported their 10 years' experience with 18 cases of leiomyoma and leiomyosarcoma in the gastrointestinal tract in 1960.[1] Only one case of leiomyoma of the ileum had been encountered.

The common symptom of a small bowel leiomyoma or leiomyosarcoma is intestinal bleeding of a mild to massive degree. Morton noted that when a patient has gastrointestinal bleeding with a duodenal deformity by x-ray examination and surgical exploration failed to reveal an ulcer, one should search then for a small bowel tumor.[9]

Pathologically leiomyoma is thought to arise from the muscular layer of the bowel. It is well circumscribed and usually a solitary lesion. Because of the amount of fibrosis seen microscopically, the term fibromyoma has frequently been used. Degenerative changes such as necrosis, cavitation, intramural hemorrhage and calcification are commonly seen in the larger tumors. It is the degenerative changes which lead to mucosal ulceration and intestinal bleeding.

The surgeon does not often make the correct preoperative diagnoses of a small bowel leiomyoma. Once the tumor has been discovered a local excision will effect a cure. A fortunate train of circumstances produced this result in the following previously reported case:[8]

A 65-year-old female was admitted for a right femoral hernia repair. Prior to surgery a complete physical examination was done which revealed a 3-4-inch movable mass in her cul-de-sac. Investigation failed to reveal the mass to be located in relation to the rectum, the uterus, or the ovary. During the previous year she had two bouts of massive gastrointestinal bleeding. Radiographic examination had shown a duodenal bulb deformity but no ulcer. She had been placed on an intensive medical regimen throughout the year.

Exploration of the abdomen revealed a pedunculated solid tumor attached to the ileum. (Fig. 8) A small bowel resection with ileo-ileostomy was done and the femoral hernia was repaired. When the bowel was opened adjacent to the tumor mucosal ulceration was found. Pathologically the tumor had a typical appearance of a leiomyoma.

When this solid tumor of the small intestine was encountered, immediate consideration was whether it was benign or malignant. There was local lymph node enlargement which was included with the bowel resection. It is of interest that metastases from leiomyosarcomas do not occur commonly in the lymph nodes but spread to the liver and peritoneum first.

The value of a complete physical examination has been proven repeatedly. If the rectal examination had not been done this patient would have had an erroneous diagnosis of a chronic duodenal ulcer and would have only had the femoral hernia repaired.

The main problem in diagnosis of small bowel tumors centers on the awareness of the surgeon to their existence. He must realize that they may produce complaints identical to other gastrointestinal diseases. Bleeding from the gastrointestinal tract in the presence of a normal roentgenographic study of the entire gastrointestinal tract should alert the surgeon to the possibility of a small bowel tumor.



Figure 8.

The small bowel tumor should be excised as soon as it can be found. Malignant change in a benign lesion of the small bowel has been reported. The only accurated diagnosis that can be made in a solid tumor of the small intestine is from the microscopic examination. Removal of a benign lesion is associated with a low risk and a complete cure while treatment of a malignant lesion is associated with a low cure rate.

One often hears the comment that the vermiform appendix is the great imitator in the abdomen. A Meckel's diverticulum has been seen that presented with the complaints of right lower quadrant pain and a tender cystic mass thought to be in the right adnexa. Exploration was done anticipating a twisted gangrenous ovarian cyst. However, a large twisted gangrenous Meckel's diverticulum was found adjacent to the right ovary. (Fig. 9) This was resected uneventfully.

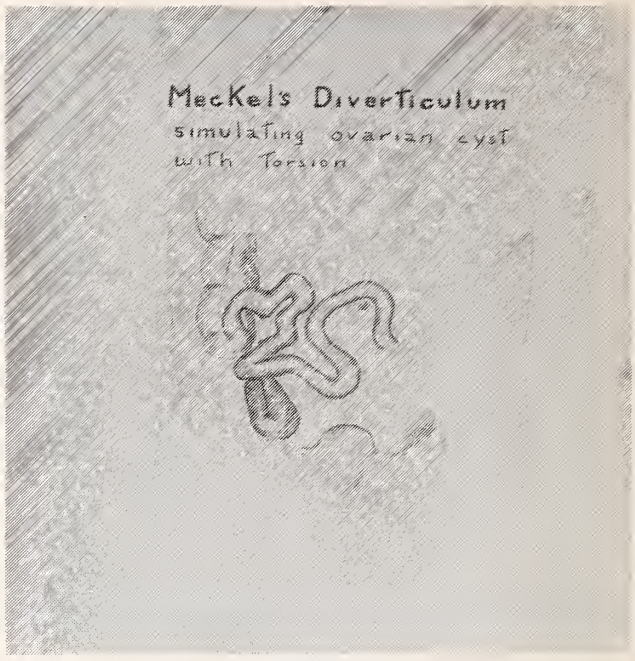


Figure 9.

SUMMARY

A total of 49 cases of surgery performed for lesions of the jejunum and ileum have been seen in a small community hospital over a period of 69 months. A number of unusual problems have been encountered, which have demonstrated certain points of importance.

Lesions of the small intestine as a group occur often enough to constitute a significant problem in diagnosis and therapy for the surgeon. The failure on the part of physicians, seeing patients with abdominal complaints, to consider the small bowel as the site of the patient's problems, has been noticeable. Our experience has proved repeatedly that awareness of these problems is the cornerstone of diagnosis and therapy.

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DRUG TESTING IS SORT OF LIKE SWIMMING

The testing of drugs for human use will always be a bit like a proposed swim in an inviting pool: though one may check the water for depth, temperature, pH, salinity, and even bacterial count, and though one may send out the family's pet chihuahua or macaque as a vanguard, one can never experience fully the feel of the water until one's own hesitating foot has been resolutely, unwaveringly, and irrevocably dipped beneath the surface — Charles S. Sherwin, M.D. in *St. Louis Medicine*, August 31, 1962.

Research in the Connective Tissue Diseases

by
John A. Mills, M.D.

Much of the most provocative research in connective tissue diseases has been in the immunologic realm. The author presents a good review of our current understanding regarding the disturbed immune mechanism in these diseases.

In the past ten years many striking advances have been made in our knowledge of cellular biology. Although the study of immunology has contributed greatly to the understanding of many biological processes, its application to the problems of human disease in contrast to endocrinology and bacteriology has been less immediate. I would like to outline a few of the developments in this field and discuss their significance with regard to our understanding of the connective tissue diseases. I propose to say little about the relationship of these diseases to each other. Surely such relationships exist, and much current investigation revolves around this assumption, but their nature seems to be no clearer in the laboratory than it is in the clinic.

It is not easy to find a starting point for the present theories concerning the nature of connective tissue diseases. Perhaps the work of Klinge and Vaubel, in the early 1930's, will serve. In the course of a general survey of the pathology of animals injected with foreign protein, they noted the similarity between the vascular lesions in these animals and the morphology of periarteritis nodosa.[1] The careful studies of Rich and Gregory in the 1940's finally established the fact that hypersensitivity reactions in humans were capable of producing a variety of lesions which appeared very similar to those of certain connective tissue diseases.[2] In the case of serum sickness, the sequence of events has now been worked out in considerable detail, and these are demonstrated in Figure 1. McCluskey[3] has recently shown that the typical symptoms and lesions of serum sickness may be produced without a lag period in a normal animal by the infusion of soluble antigen-antibody complexes prepared in vitro. These facts are possibly of importance to those interested in connective tissue diseases because gamma globulin, presumably antibody, has been demonstrated at the site of tissue damage in both rheumatoid arthritis and lupus erythematosus. While there is no doubt that antigen-antibody reactions can lead to tissue

Presented at the Scientific Assembly of the 70th Annual Meeting of The Arizona Medical Association, Inc., April 28, 1961.
Instructor in Medicine, Harvard Medical School and Member, Robert W. Lovett Memorial Unit for the Study of Crippling Diseases, Boston, Massachusetts.

damage, the mechanism by which this comes about is still largely unknown. Indeed, it is possible that the antigen-antibody complexes are only secondarily deposited on blood vessel basement membranes when there is a local state of increased capillary permeability such as is present in any inflammatory reaction. Nevertheless, as might be expected, the observations described have precipitated an intensive search for an exogenous antigen as a cause for certain of the connective tissue diseases. The result, except for the implication of sulfa drugs, penicillin, benemid, and a few other drugs in certain cases of acute arteritis, has been disappointing. In 1953 a curious disseminated lupus erythematosus-like illness was reported in patients taking hydralzine over prolonged periods. In the latter group all cases have subsided immediately upon stopping

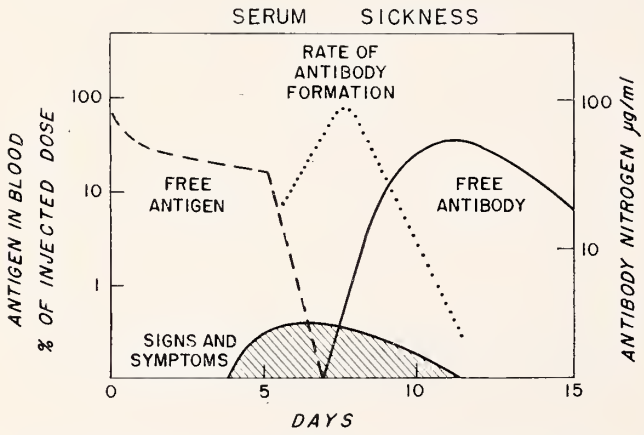


Figure I
Serum Sickness, Relationship of Immunologic Events To Symptoms

the drug. Attempts to reproduce this disorder in experimental animals have failed. Several features of the syndrome, especially the long period required for it to develop, suggest that is is a reaction of toxicity, rather than a true sensitivity. Nevertheless, this syndrome has stimulated the search for other substances which might act as antigens.

A new approach to the study of these diseases was ushered in as a result of the work of Coombs, and the subsequent demonstration that certain hemolytic anemias were associated with antibodies to Rh blood group substances. The realization, that under certain conditions the body could develop a sensitivity to one of its own constituents, had a tremendous impact on the connective tissue disease field and it is the repercussions of this fact that I would like to present.

The problem of rheumatoid arthritis began to attract new attention when Rose and Ragan[5] rediscovered in 1948 an observation first made by Waaler some years earlier that the serum of patients with rheumatoid arthritis was capable of agglutinating sheep cells under certain conditions. The research which has stemmed from this observation is staggering. It has been shown that the factor is a large molecular weight gamma globulin. By most criteria it seems to act as an antibody to the smaller molecular weight gamma globulin which forms the bulk of normal serum gamma globulin.[6] A most significant finding is that the specificity of this auto-antibody-like factor is directed toward a part of the gamma globulin molecule which is not only shared by the gamma globulins of some other species but which seems to be made more reactive by aggregating the gamma globulin by heat or other physical means. Considerable doubt now surrounds the postulated role of this factor in the pathogenesis of arthritis, and it is worth noting that rheumatoid factor has many of the characteristics of Wasserman factor, the specificity of which appears to bear little relationship to the pathogenesis of lues.

Concurrently with this work, appeared the description of the now familiar L.E. cell by Hargraves. It has since been found that this phenomenon is due to the presence in the blood of patients with lupus erythematosus of a protein which reacts with cell nuclear protein. In fact, several such factors appear to be present in lupus serum, each reacting with a different cellular component.[9] Meischer[10] and Seligman[11] have found that one such component is deoxyribonucleic acid. This material is normally composed of two complimentary intertwined strands of polynucleotide, and it has recently been demonstrated that it is a partially disrupted, or single-strand DNA for which this L.E. factor has the greatest affinity.[12] In some ways this seems analgous to the specificity of rheumatoid factor for aggregated gamma globulin and suggests that the factors might be produced in response to the release of altered proteins from previously damaged tissues. These facts raised the possibility that the rheumatoid factor or L.E. factor as auto-antibodies might themselves be responsible for the tissue damage in the two respective diseases. At this time, the now well-known observations of Roitt and Doniach were reported.[13] The find-

ing that many patients with chronic thyroiditis and hypothyroidism had auto-antibodies to their own thyroglobulin had been preceded in 1956 by Rose and Witebsky's demonstration that the immunization of experimental animals with thyroglobulin, even their own, could produce thyroiditis.[14] This work has been of great importance to those interested in connective tissue diseases because of the fact that the cellular pathology and immunological features of the condition resemble in many respects those of rheumatoid arthritis. The comparison is made more intriguing by the fact that as many as 20% of patients with thyroiditis may also have increased amounts of rheumatoid factor.[15] Another human disease, Sjogren's Syndrome, which histologically seems to be a Hashimoto-like inflammation of the lacrimal and salivary glands is of interest because, not only do patients with this condition have positive tests for rheumatoid factor and a high incidence of rheumatoid arthritis, but some have L. E. factor, and the condition may be associated with clinical lupus erythematosus or polymyositis.[16]

These facts would seem to point to some disturbance of the immune mechanism in the connective tissue diseases. To date, however, all attempts to demonstrate that rheumatoid or L. E. factor could produce tissue damage have failed. The transfusion of large volumes of plasma from patients having high titers of rheumatoid factor into normal human volunteers has produced no detectable disease.[17] Since, in any case, not all patients with connective tissue diseases manifest these factors, it begins to look as though they might be related but incidental and not causal manifestations. Support for this belief has been found in the fact that patients with congenital or acquired agammaglobulinemia, that is whose serum contains little gamma globulin and thus little or no antibody, not only develop connective tissue disease, but do so with a higher than normal frequency.[10] Study of this interesting condition has revealed that, although subjects with agammaglobulinemia are unable to make antibodies and therefore display the classical immediate types of sensitivity, such as anaphylaxis and serum sickness, they do show apparently normal delayed or tuberculin type sensitivity, and it is this mechanism to which those interested in the etiology of connective tissue diseases are now turning.

Table I
COMPARISON OF IMMEDIATE AND DELAYED SENSITIVITY

Criteria	Immediate Sensitivity Antibody Induced	Delayed Sensitivity Tuberculin Type
1. Antigens	Many Proteins Polysaccharides Simple Chemicals	Protcins Not Polysaccharides
2. Antibody	Present	Absent
3. Tissue Response	Macrophages Plasma Cells Eosinophiles	Lymphocytes Macrophages
4. Onset of Reaction	Immediate 1-3 Hrs.	Delayed 6-12 Hrs.
5. Passive Transfer of Sensitivity	With Serum	With Cells Only
6. Inhibition by Cortisone	Poor	Good

In Table I are contrasted the characteristics of immediate and delayed sensitivity. The outstanding features of delayed sensitivity are that the reactions of sensitized tisues take 18 to 24 hours to develop when they are exposed to antigen and perhaps even more characteristically such sensitivity cannot be transferred from one subject to another by means of serum or any non-cellular component.* In 1945, however, Chase showed that cells of the reticuloendothelial system, notably lymphocytes, if transfused from a tuberculin sensitized animal to a normal animal would render the recipient also sensitive to tuberculin.

At this point developments in another field become pertinent. This is in connection with the question as to whether the body is capable of developing a delayed type of sensitivity to its own constituents in a manner analagous to the way auto-antibodies develop in certain blood dyscrasias. In 1954 Medawar made a remarkable discovery in the course of a study of the phenomenon whereby the transplantation of tissue from one individual to another is followed by the rejection of that graft after a variable interval. This now historical finding was that if the tissue is transplanted to a neonatal recipient or to an embryo, it is not rejected and, furthermore, that transfer of other graft from the same donor to the same recipient after it has matured is also tolerated. The rejection of tissue transplants is brought about by a mechanism that bears a strong similarity to that of delayed sensitivity. No circulating cytopathogenic antibody against transplanted tissue has ever been demonstrated. However, like delayed sensitivity, lymphocytes are capable of transferring homograft sensitivity.

*A possible exception to this statement may be the transfer factor of Lawrence.

Thus if a graft from animal A is transferred to animal B, it is rejected after an interval of 6 to 8 days. If later, another graft is transferred, it is rejected much more quickly — in 3 to 4 days. That is, animal B has become sensitized to the tissues of animal A. If, some lymphocytes are now transferred from animal B to animal C, they can be shown to transmit to animal C a sensitivity to the tissues of animal A, and C will reject a graft from animal A with an accelerated reaction, even though it has never met animal A's tissues before. The phenomenon of immune tolerance described first suggested to Medawar[19], and also to Sir MacFarland Burnett[20], that the bodies own tissues are tolerated because they are developed before the immune mechanism becomes functional, and that only antigens appearing after the immune mechanism becomes mature provoke sensitivity. This immune mechanism is almost certainly a function of the reticuloendothelial system. Medawar has proposed that some tissue constituents such as thyroglobulin, myelin, lens protein, and the protein of spermatozoa, never come in contact with the reticuloendothelial system in the normal state of events, and thus in theory, it should be possible to produce an autosensitization of the delayed type to these body constituents. This is, in fact, just what has happened. Not only has an experimental disease been produced in each case, but it is now recognized that a natural human disease exists in which it is probable that a sensitivity is developed to each of these various proteins. As additional proof that these are diseases of delayed sensitivity, it has been demonstrated that, where as passive transfer of these disorders has failed to be accomplished with classical antibody, it has succeeded in at least two cases when lymphocytes are used. These are experimental encephalomyelitis[21] and most recently, experimental thyroiditis.[22] Autosensitization of delayed type can, then, and probably does produce specific tissue damage.

Summary

Where does this leave those working on the etiology of connective tissue disease? I would like to conclude by summarizing the evidence by which it is suggested that certain connective tissue diseases may be manifestations of an abnormal delayed sensitivity mechanism. This is given in Table 2.

Table II

Connective Tissue Diseases as Delayed Sensitivity Reactions

1. Histology of Lesions Similar to Experimental Delayed Sensitivity Reactions.
2. Frequent Association With Diseases Now Demonstrated To Be Probably Due To Delayed Autosensitivity
 - Chronic Thyroiditis
 - ? Sjogren's Syndrome
3. Good Response To Drugs Which Inhibit Experimental Delayed Sensitivity Reactions
 - Glucocorticoids
 - Nitrogen Mustard
4. Occurrence of Connective Tissue Diseases In Patients With Agammaglobulinemia
5. Nonspecifivity of Autoantibodies Present In Connective Tissue Diseases.

Many questions remain to be answered. How might delayed sensitivity arise to produce connective tissue diseases? Here one launches into pure speculation, but there are several tantalizing facts which might be taken as clues. One mechanism might involve some alteration in the character of a body constituent, so that it becomes a new antigen. The suggestion that rheumatoid factor and L. E. factor seem to have a particular affinity for altered proteins is evidence along this line. A second theory proposes that there is a primary aberration of the immune mechanism. In recent years, several studies have established the strong familial tendency toward connective tissue diseases. Particularly interesting is the finding that normal members of the families of patients with rheumatoid arthritis, disseminated lupus erythematosus, or certain cases of dermatomyositis may show significant titers of rheumatoid factor or L. E. factor or both. Furthermore, the same holds true for the families of children with agammaglobulinemia. It has, therefore, been suggested that an hereditary abnormality of the immune mechanism is an important factor in the pathogenesis of connective tissue disease. This clearly leaves a lot to account for. What are the trigger mechanisms? If such a genetic defect exists, why do so many patients with connective tissue disease experience prolonged remissions? How does one account for the strong influence of emotional factors, fatigue, and even the sun and rain on the course of the disease? Recently a disorder of tyrosine metabolism has been reported in 100% of cases of rheumatoid arthritis tested.[23] To what extent are biochemical abnormalities involved?

Despite the strong appeal of the immunological theories, there are many facts to be reconciled with them. The field of the connective tissue diseases, like that of an ancient battle, is presently full of "alarms and excursions". It is to be hoped that the elucidation of the delayed sensitivity mechanism will bring with it major advances in our understanding of disease and especially the connective tissue diseases.

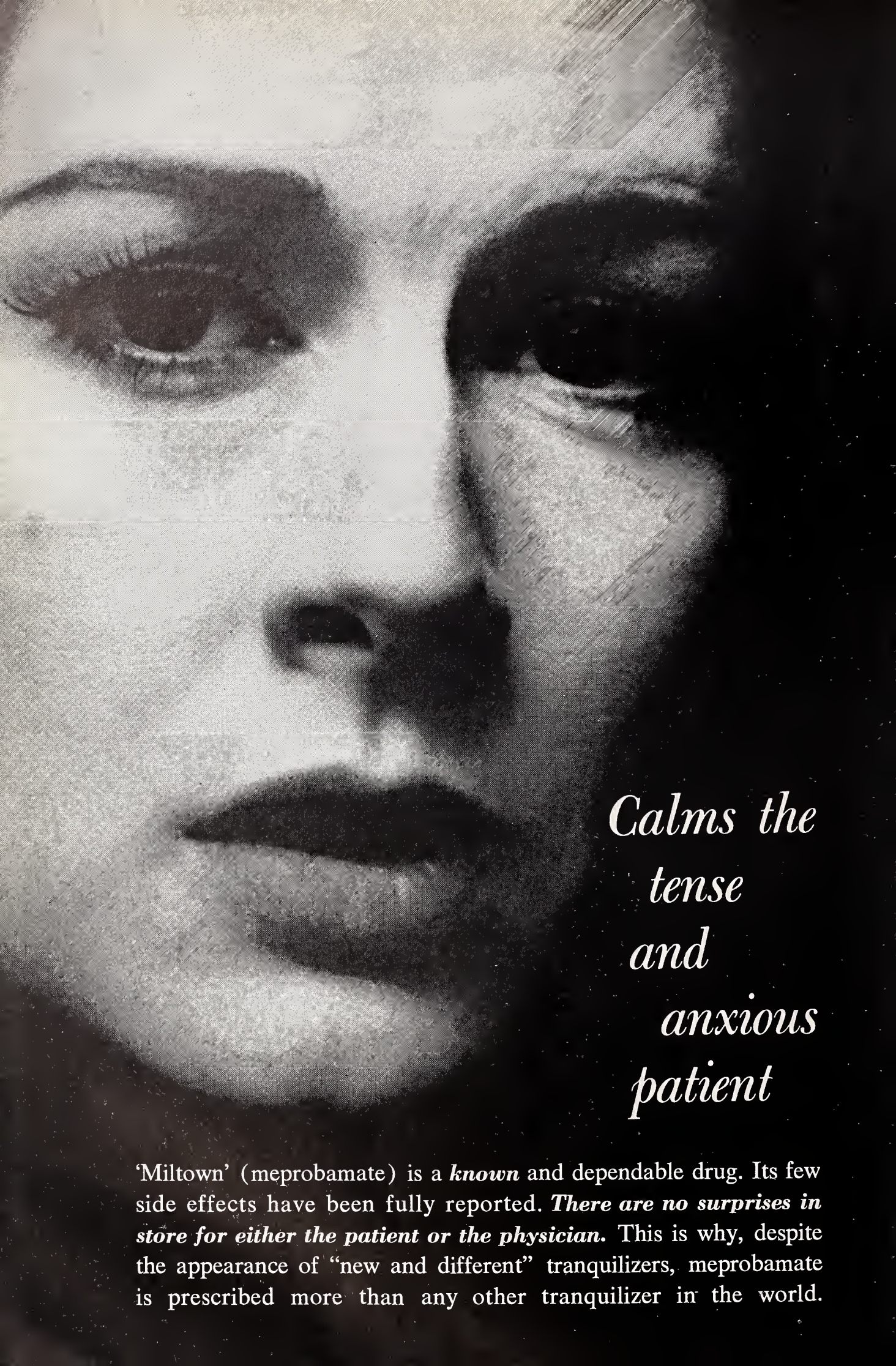
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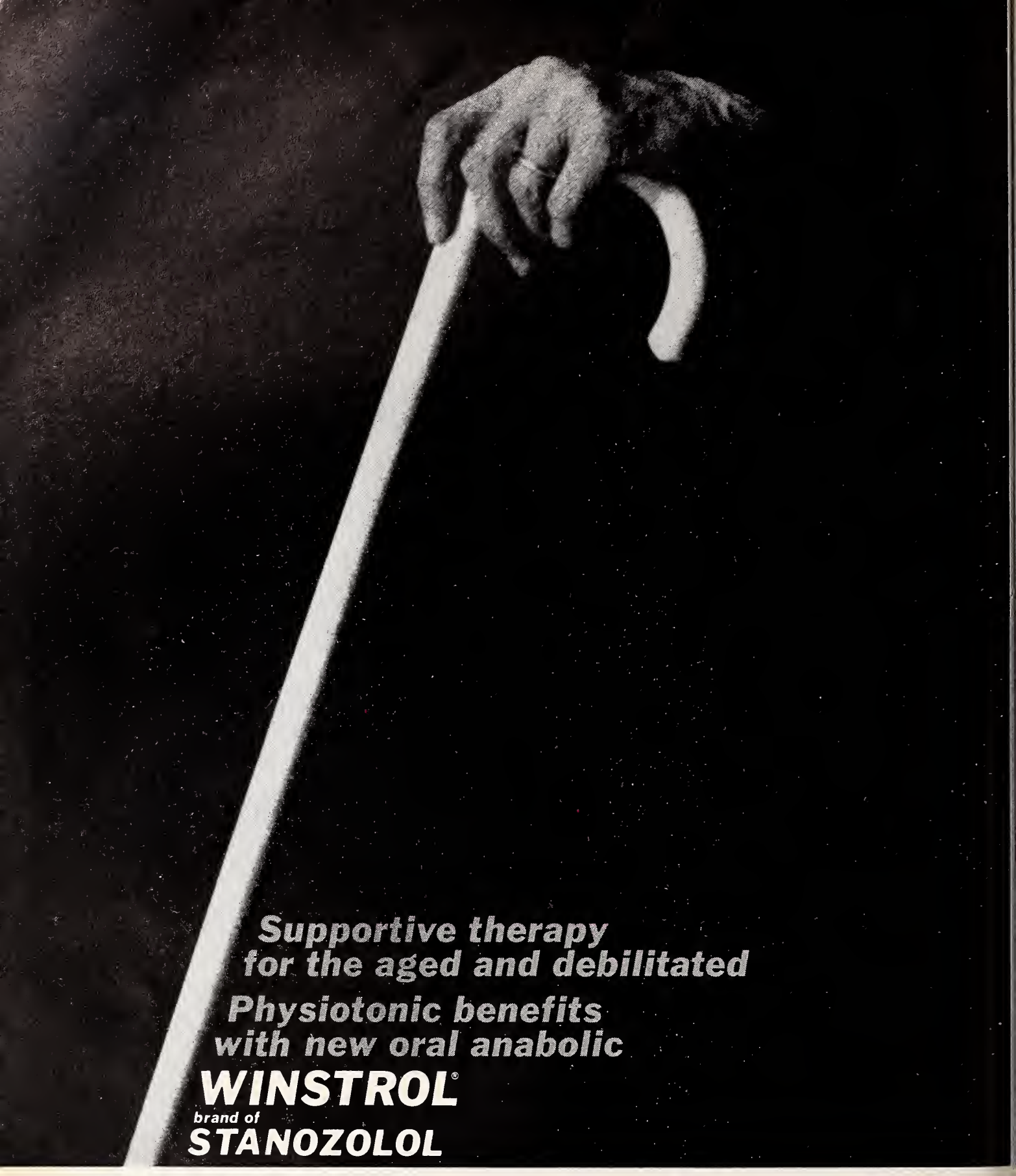
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William B. Steen, M.D.

The Chairman of the Public Relations Committee, who is also in charge of the Operations Hometown, the Executive and Assistant Executive Secretaries of the state office, our Field Representative from Chicago, and your President have traveled over 3,000 miles visiting the towns and counties and have met with groups in Phoenix, Prescott, Flagstaff, Holbrook, Miami, Benson, Safford, Bisbee, Pine Top, Yuma, and Tucson. Operation Hometown is a going concern throughout the state.

County and District Chairmen are all developing active committees in their areas. Visitations have been made on at least two occasions to the various areas and the response has been gratifying. Everything points to these groups shifting into high gear with each of the different activities bringing their messages to the people of Arizona.

Material Distribution has been very active, and thousands of pieces of information have been placed in critical areas to inform the public of the problems confronting them with HR 3920. Through the stimulus of information and the active participation of the *Letter-Writing* group, that flood-tide of letters, referred to by Dr. Annis, will soon be on its way to our congressional delegations in Washington, telling them that the folks back home are opposed to HR 3920.
Doctors of County Speakers Bureaus are appearing before various groups in the state.

The *Enlisting Allies* Committees are working with sympathetic groups such as the Farm Bureau. Dr. Annis appeared before the Western Regional Conference of Farm Bureaus Federations in Berkeley, California on July 10, 1963, and made a clarion call to action talk, which has been taped. Here is an excellent opportunity for doctors in each of the counties to appear before and forge the sympathetic feeling of the Farm Groups into a dynamic force in this struggle to defeat HR 3920.

Newspaper, Radio and Television groups are working effectively throughout the state. Material is appearing on radio, television and in the press. Pinal County has had a half page paid article in their local papers. Graham County has gone to the air.

Congressional Contacts are being developed to give Congressmen accurate information on the issue. This will, by force of necessity, be carried out by those knowing the Congressmen and certainly with tact, diplomacy and courtesy.

There's no end to the amount of good this organization of Operation Hometown can do for our state and our country to successfully oppose HR 3920.

In my journeys about the state, talking to the doctors and their wives, defeat of HR 3920 has been the main issue emphasized. Comments were made about 3 local or state problems. Implementation of the Kerr Mills Law, a new Medical Practice Act and an amendment to the Basic Science Law.

Certainly we need an implementation act for the Kerr Mills Law to provide care for those *who need it at the local level and under local control.*

The need for an amendment to the Basic Science Law has long been recognized. To return the law to its original intent is the purpose of this amendment.

A new Medical-Surgical act has been needed for quite some time. The proposed act is the result of many hours of hard work by a committee consisting an ad hoc committee of the State Association, and the Board of Medical Examiners.

The three measures listed are mentioned so that all the doctors in the state will keep them in mind. More will be said about them later on, as they are to be introduced in the next session of the legislature. Whole hearted cooperation of the doctors and their wives and friends will be needed to insure their passage.

Something should be said about Blue Cross that has had considerable coverage in the newspapers lately. Along with Blue Shield they make up our Blue Plan. To meet a public need for Voluntary Health Insurance the Blue Plan was developed in 1944. Just as much now as then, there is this public need for Health Insurance. Needs have changed in these times with the development of different policies, and changes have been made in the approach to the problem.

On July 14, 1963, the Arizona Blue Cross plan

announced a seven point program to stabilize the plan's reserve fund. Necessary hospitalization will be provided along with good medical care. This is our own voluntary plan which needs the support and help of every doctor.

The Blue Cross board of directors, in projecting this new program, declared that everything has been done to assure stability and continuity of the plan for the benefit of the subscribers, the general public and the hospitals.

Blue Shield, which provides Health Insurance for Doctors' Bills is another of our own projects. At present we have two Committees studying different phases of Blue Shield.

(1) The ad hoc Committee for Appraisal of Blue Shield

(2) The ad hoc Committee for the Orderly Realignment of Blue Shield

With the new measures that have been provided, I am sure the Doctors are certain that our Blue Plan is here to stay and will remain as a bulwark of our voluntary system.

At the present time, all effort and energy will need to be expended to insure the defeat of HR 3920.

William B. Steen, M.D.
President

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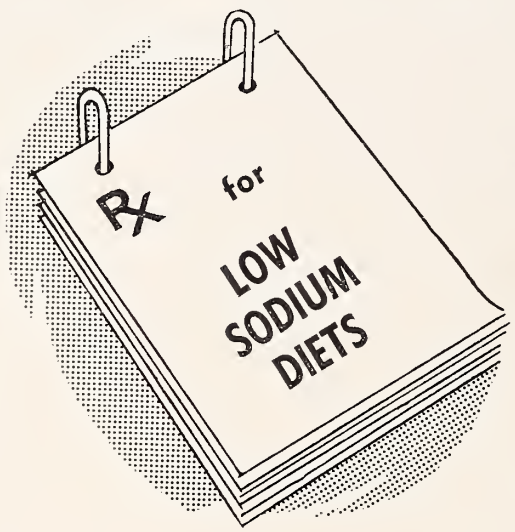
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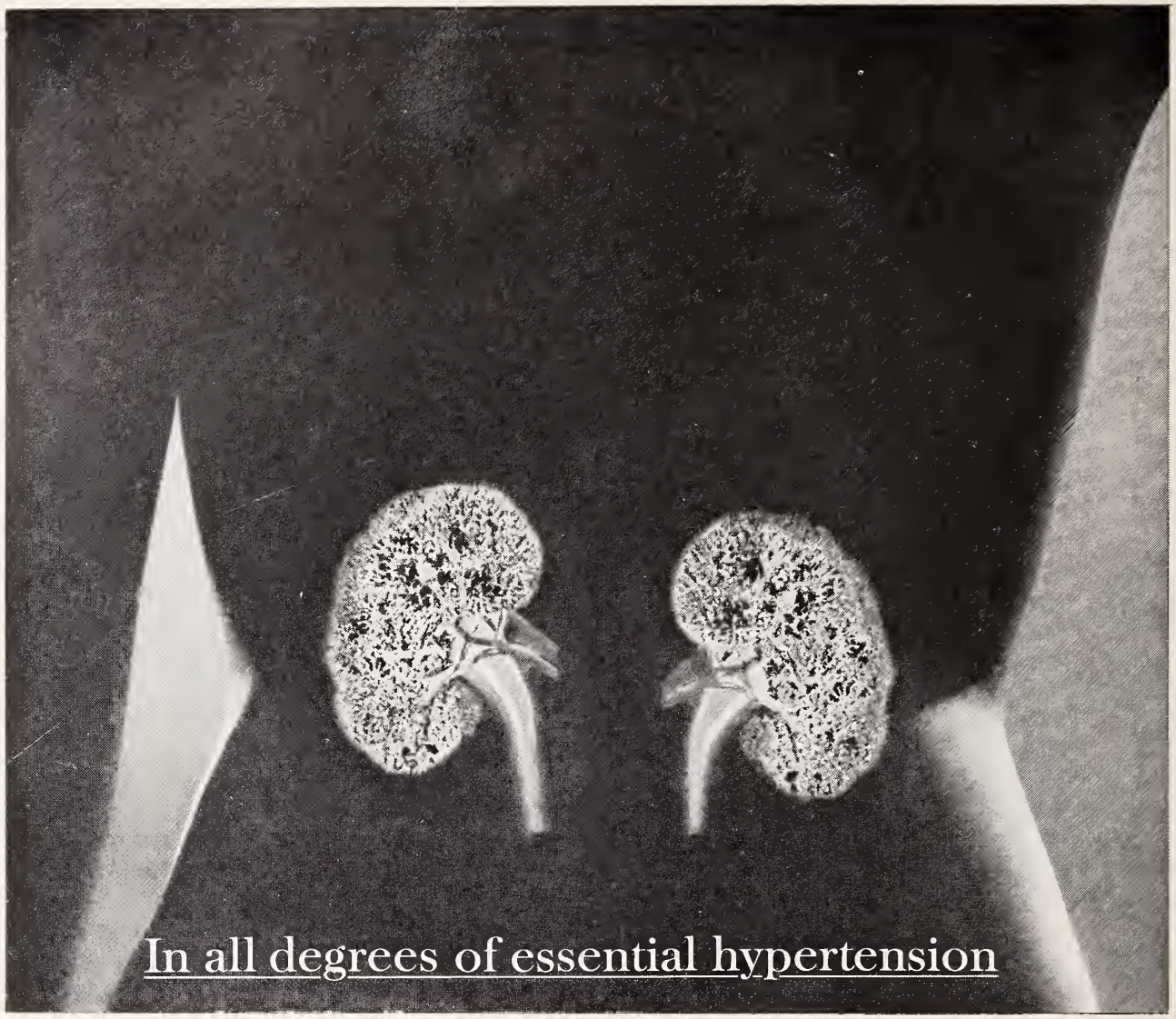
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2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
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4. Articles are accepted for publication only if they are contributed exclusively to this Journal. Ordinarily, contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
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Editorials of Arizona Medicine are the opinions of the authors and do not necessarily represent the official stand of The Arizona Medical Association, Inc. The opinions of the Board of Directors may be sought in the published proceedings of that body.

Since the plan does affect so many of our patients, and in view of recent publicity about Blue Cross in Arizona, we thought it timely and important to review some of the issues and reprint some of the statements and editorials about Blue Cross.

The problems simply stem from benefit payments to the hospitals in 1962 exceeding subscriber income. There has been a continuation of this fiscal problem into 1963. The deficit was made up from prior reserves. A rate increase last year failed to solve the problem. This was due to utilization beyond what the best actuarial studies forecast, and a longer average hospital stay for Blue Cross patients than for patients in other categories.

Early this year the situation became acute when the plan was forced to deplete its reserves to a point below that required by the American Hospital Association. In order to solve the immediate problem member hospitals have been asked to defer part of their payments to a future date if necessary this year. Other long range changes are designed to solve the future problems.

All Blue Cross member and cooperating hospitals have signed the stipulation with a few hospitals raising legitimate questions which have been answered.

To all of these hospitals the community owes its thanks for their voluntary cooperation.

Among the small group of non-profit hospitals who have most strenuously criticized the stipulation and Blue Cross in general are hospitals with recent occupancy rates among the lowest for hospitals of their size in the State.

The deferment stipulation, and the other changes in Blue Cross policy are designed to convert its red ink to black and I believe they will succeed. Having been a member of the Blue Cross board of directors for four years I know that the changes were not arrived at arbitrarily or lightly.

As your editor I felt that some of the following items would help us all to better understand the problems and help in answering questions from our patients who are the prime concern of us all.

Robert F. Lorenzen, M.D.
Editor

Summary of Changes in Blue Cross

HAVING overcome a major crisis in Blue Cross operations due to benefit payments exceeding subscriber income, the board of directors has announced a sweeping course of action aimed at further stabilizing the plan. The initial problem of aligning hospitals in support of the necessary deferred payment agreement for 1963 has been solved upon the signing of the majority of the patient beds in the State.

The hospitals are not being asked to subsidize Blue Cross. What those who have signed are doing is accepting deferment on their payments during 1963 so that Blue Cross can strengthen its reserve fund. This will assure complete continuity of service to the subscriber. A 3 per cent addition to Blue Cross reserves is a requirement for approval by the American Hospital Association, and Blue Cross subscribers have been drawing on this reserve fund since 1962.

Plans outlined by Blue Cross officials include: (1) Setting up of a hospital case review committee within Blue Cross; (2) Establishing within each Blue Cross member hospital a utilization committee; (3) Initiation of a reconfirmation policy; (4) Strengthening of enrollment requirements; (5) Development of merit rating within groups; (6) Adoption of room allowances in certain contract categories; (7) Introduction of a co-pay contract between the member and Blue Cross, known as the "80/20" program.

The adoption of the merit rating principle will be to the advantage of the membership, as it will place the responsibility of any increased membership costs within those groups where utilization is greatest. Such a rating system will voluntarily reduce over-utilization.

Under the new "80/20" program, there would be a fixed cash allowance for the hospital room. On the first $500 of other hospital costs, 80 per cent would be provided by Blue Cross and 20 per cent paid by the subscriber. Benefits above $500 will be provided on a complete service basis up to the full extent of the subscribers' contract. A complete service contract will still be available to qualifying groups.

The enrollment regulations will be strengthened by requiring actuarial percentages in all contract categories.

All Blue Cross member hospitals will be required to set up utilization committees to insure that hospital utilization and the corresponding expenses to the patient are not greater than that required by good medical practice.

The Blue Cross reconfirmation procedure will go into operation on those patients remaining in the hospital 15 days. At the end of the second week, the attending physician will be asked to sign a certification form, supplying medical information and an estimate of the number of additional days' care needed before discharge is possible, stating that continuation of the stay is necessary for care which cannot be rendered elsewhere than in the hospital. Many patients do not realize that convalescent and nursing home type care in the hospital is not covered by their policy.

In no cases would necessary hospitalization be curtailed. The review and certification programs have already started, however, changes affecting present subscribers' contracts will not be made until the revisions made in 1962 and early 1963 have been in effect for one year.

Last year, Blue Cross' income from subscribers was $8,755,933.47, with payments of $9,134,-174.10 in subscriber benefits. The operating expense was 5.5 per cent, or only 5½ cents out of every dollar taken in, making it among the lowest in the country. This administrative expense included all costs for operating the plan: salaries, sales acquisition, equipment, etc. The local plan is one of 81 providing this type of prepayment care to 61 million people in the United States and Canada.

Regarding the deferred payment to hospitals it should be noted that all member hospitals will participate in the deferment plan. Any hospitals that have not signed the deferment agreement by August 15 will relinquish their member hospital status in accordance with the action taken by the Blue Cross board.

"By agreeing to the temporary deferment, the hospitals will be assuming their individual responsibility in perpetuating the voluntary health care system of the country, the finest existent in the world today," said Stephen M. Morris, president of the Blue Cross board of directors and president of the Arizona Hospital Association.

Statements by Arizona Physicians

WILLIAM B. STEEN, M.D., Tucson, president of the Arizona Medical Association, said, "The action being undertaken by Blue Cross, such as the establishment of utilization committees, will prove to be of great benefit in stabilizing the plan's financial condition, and at the same time, will reassure the public and the Blue Cross membership that the service is here to stay as a bulwark of the voluntary system."

NOEL G. SMITH, M.D., pres. of the Maricopa County Medical Society and a past president of Blue Shield, said, "I have been deeply concerned with the situation confronting Blue Cross. I have, therefore, taken it upon myself to review the problem with various members of the Blue Cross organization. It is my personal opinion that the economic problem now confronting Blue Cross is a temporary situation. It is apparent to me that the straightforward and businesslike approach outlined by the Blue Cross board of directors will result in a complete resolution to the problem. This can be done particularly with the wholehearted support of Blue Cross subscribers, the hospitals and physicians. I am certain that the physicians in Maricopa County will cooperate to their fullest ability in activating the program proposed by the Blue Cross board of directors."

PAUL SINGER, M.D., past pres. of the Maricopa County Medical Society, and a state senator from Maricopa County, has this comment: "Blue Cross was established in Arizona in 1944, and has grown from a plan of a few thousand to one of a membership close to a quarter of a million. It was created under a special Enabling Act by the Arizona State Legislature, and is incorporated as a voluntary, nonprofit, community service organization, administered by an executive director, L. Donald Lau, and a staff of some 78 people in Phoenix and Tucson. A board of directors comprised of 21 prominent citizens throughout the state serves without remuneration. The need for the preservation of the voluntary system is certainly more apparent today than ever in our history, and the assurance of this demands continuation of Blue Cross. This is an obligation belonging to the hospitals to see that this traditional humanitarian program is carried through for the good of the people."

EDITORIALS

STATEMENTS BY HOSPITAL ADMINISTRATORS

SISTER MARY PLACIDA, adm. of the 425-bed St. Joseph's Hospital, which along with Good Samaritan is one of the state's largest hospitals, said in signing the agreement, "The assurance of continuation and expansion of Blue Cross in Arizona, as well as elsewhere, is a prime concern to hospital people everywhere. The hospitals, together with Blue Cross, are here for one purpose and one purpose only, and that is to make today's unsurpassed medical care available when it is needed by the people. The hospitals themselves founded Blue Cross with this one purpose in mind over 30 years ago, and although many other things have drastically changed all around us, this original concept of serving the people is still just as valid today as it was when originated."

RICHARD L. DURBIN, adm. of Tucson Medical Center, stated, "I feel that Blue Cross has allowed a paient to be hospitalized without the pressures sometimes involved by the need for payment of the hospital bill; and the physician, I am sure, in many cases would like to keep a patient in the hospital for medical reasons longer than the patient is financially able to stay. I feel that Blue Cross has removed this economic pressure from both the patient and the physician and has encouraged the ideal that all of us strive for. It has strengthened the physician's freedom and has acted in the best interest of both the physician and the patient."

Blue Cross Problems

ARIZONA BLUE CROSS, which conducts the state's largest voluntary pre-paid hospital insurance program, is having financial difficulties. It is suffering from what is euphemistically described as "over-utilization." In simpler terms, Blue Cross subscribers have been staying in hospitals longer than they used to. The corresponding increase in hospital payments by Blue Cross has used up the organization's contingency reserves.

In order to restore reserve funds, Blue Cross has asked its 49 member hospitals throughout the state to accept deferred payments of up to 3 per cent of the amounts due them from Blue Cross. In other words, a hospital that has $1.00 coming to it for treatment of a Blue Cross subscriber is asked to agree to accept 97 cents this year. The additional 3 cents will be paid as soon as the Blue Cross reserve meets the approval of the auditors.

In overall terms, Blue Cross must accumulate a surplus of some $300,000 annually out of an operation that grosses around $10 million a year. No businessman would consider that an inordinately difficult task. Blue Cross may be able to do it without deferring payments to hospitals. However, most of the important member hospitals, realizing that Blue Cross helps them as much as it helps the subscribers, have agreed to the deferred payment if it is needed.

Blue Cross hopes to stop "over-utilization" through cooperation between doctors and hospitals. Utilization committees already are working on the problem. There is no reason why Blue Cross subscribers should stay in hospitals longer than non-subscribers. Both have the same illnesses. The reason for the longer stay is the knowledge that the subscriber doesn't have to pay for the extra day or two out of his own pocket. The hospital collects from Blue Cross. While such an attitude may be human, it isn't rational. We never heard of anyone setting his house on fire just to collect insurance. Unless, of course, he was an arsonist.

It is no mere coincidence that "over-utilization" appeared simultaneously with the opening of a large number of small community hospitals in the Phoenix area. After having had an acute shortage for some years, Phoenicians suddenly found there was a surplus of hospital beds except in a few of the most highly rated hospitals. So they added a day or two to each hospital stay, and Blue Cross (along with other health insurance plans) had to pick up the bill.

Since Americans are basically reasonable, we believe the current abuse of hospital insurance, relatively small as it is, will promptly be brought under control. For if hospitals, doctors, and patients can't discipline themselves, some sort of socialized government medicine is inevitable. Pre-paid, private health insurance is the best answer to meeting medical costs. But it requires the same careful budgetary procedures that any successful business requires. Blue Cross is putting those procedures into operation.

Reprinted with permission from the July 13, 1963 issue of the ARIZONA REPUBLIC.

Why Blue Cross Must Cure It Own Economic Illness

AS a non-profit organization providing 243,000 Arizonans with a prepayment plan for hospital care, Arizona Blue Cross is a vital agency for helping to meet the health needs of the people of Arizona.

Blue Cross also is important to its 49 member hospitals throughout the state. They are strengthened in their operations by the fact that Blue Cross assures them prompt payment for services rendered a large percentage of hospital patients. In 1962, BC paid hospitals a total of $9,134,174. That kind of income in guaranteed form is essential to the economic well-being of the hospitals.

Currently, Blue Cross itself has been stricken with economic illness which its own subscribers and member hospitals are being called upon to help cure. Its condition, in medical terminology, is "critical." In the past year, Blue Cross has been forced to deplete its reserves by $880,000 in order to make full payments to hospitals for bills of its subscribers. Blue Cross reserves fell to $139,000.

Those are good reasons why Blue Cross must succeed in curing its own illness. It should be understood that the financial illness has been, to a great extent, "caught" from subscribers themselves. Studies show that BC patients stay in hospitals longer than patients who pay their own way or patients who are covered on a limited basis by other hospitalization policies. In its idealistic approach, Blue Cross undertook to guarantee total hospital bill payment for its subscribers.

Sometimes there may be good cause for a BC patient to remain in a hospital longer than average. Ofttimes a BC patient may just take advantage of the total-cost coverage he enjoys. Private enterprise Santa Claus-ism is no more feasible than federal government Santa Claus-ism — "if it's free, get all you can."

In either case, Blue Cross is abandoning the philosophy of total coverage for its beneficiaries. It has to. Henceforth, there will be some patient sharing of costs, which reasonable subscribers will understand and accept. Hospitals also are cooperating, during this period of readjustment, by allowing Blue Cross to defer a portion of payments due so that reserves can be rebuilt.

With such understanding and cooperation all around—from subscribers, doctors and hospitals —the confidence which Blue Cross has enjoyed so deservedly over the years will be restored. And the security it has afforded to Arizonans and Arizona hospital operations will be maintained.

Reprinted with permission from the July 19, 1963 issue of the TUCSON DAILY CITIZEN.

Growth in Medical Writing

IN the last eighty years the number of medical publications throughout the world has increased over 6 times: from 850 to more than 6,000. This does not include some journals of "mixed," basic science studies.

By continuous, daily, full time study the average student would be able to read about one-third of the volume now produced. The World List of Scientific Periodicals contained 24,000 titles in 1924; 50,000 in 1952; and the projected count for 1980 is over 100,000.

Robert D. Smith, M.D., Phoenix



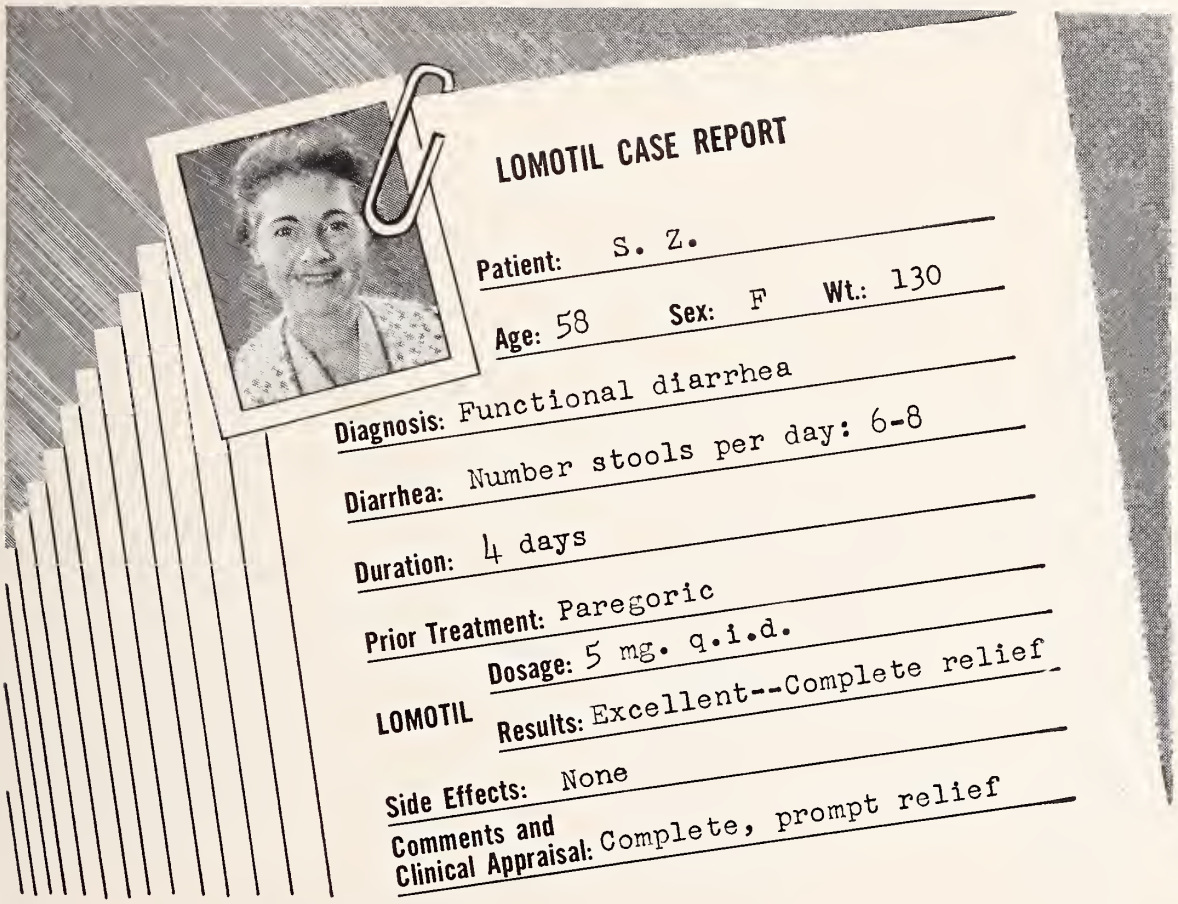
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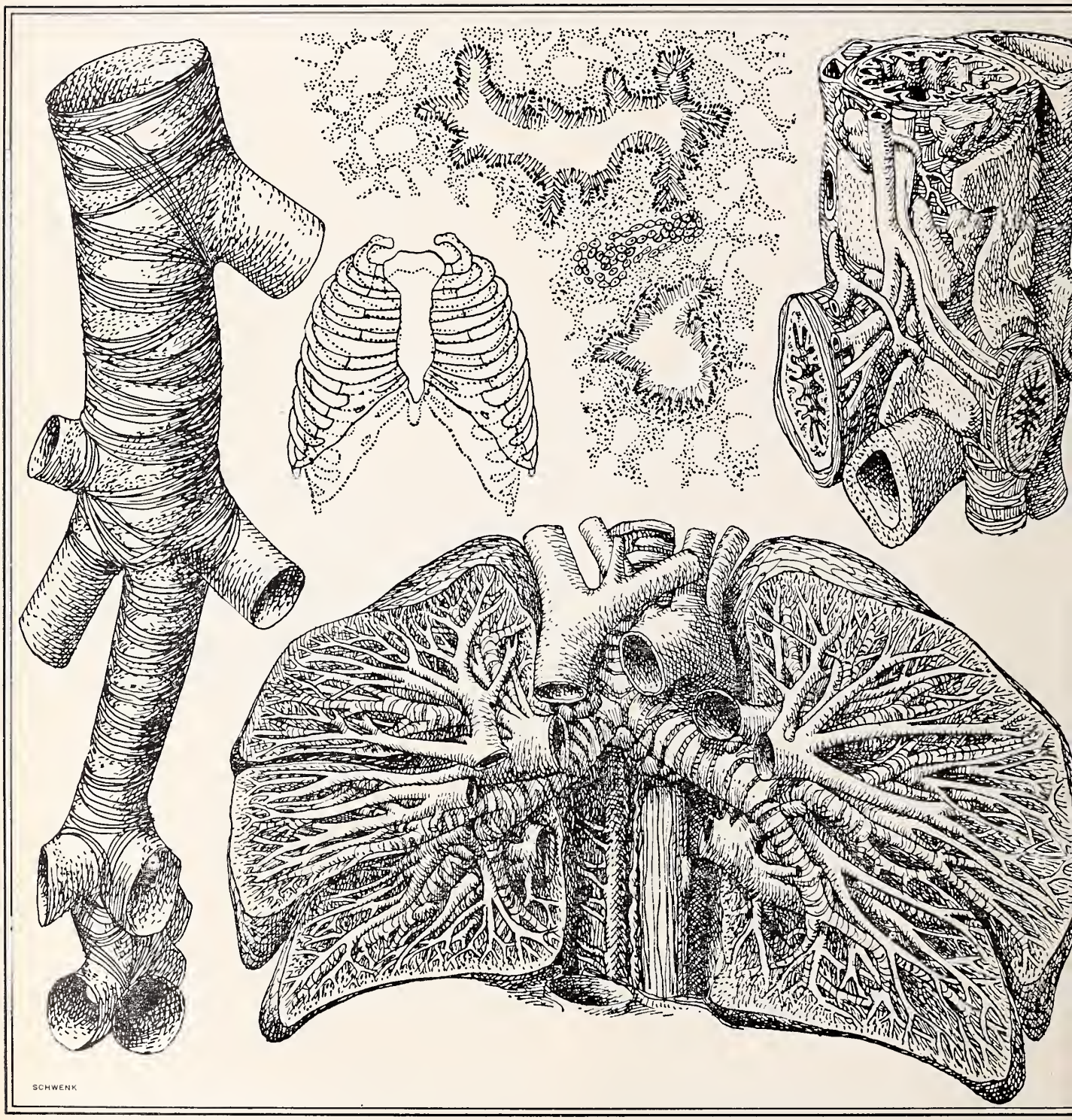
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1. Weingorten, B.; Weiss, J., and Simon, M.: A Clinicol Evoluotion of o New Antidiorrheol Agent, Amer. J. Gostroent. 35:628-633 (June) 1961. 2. Hock, C. W.: Relief of Diarrheo with Diphenoxylote Hydrochloride (Lomotil), J. Med. Ass. Georgio 50:485-488 (Oct.) 1961.

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Paul J. Waltz, M. D.

1908—1963

PAUL J. WALTZ, M.D., was born on March 1, 1908, in Pennville, Indiana, the third child of William C. and Olive Jones Waltz. He died April 29, 1963, of acute brain trauma resulting from a fall.

Doctor Waltz was graduated from high school in Pennville and was a rector scholar at DePauw University, Greencastle, Indiana. He did additional work at the University of New York and the University of Akron. He held an A.B., B.M. and M.D. degree from Wayne University in Detroit, Michigan.

He practiced medicine in Highland Park, Michigan for fifteen years and served on the staff of Highland Park General Hospital. During this time he was a member of the Council of Wayne County Medical Society, the Noon Day Study Club, the American Academy of General Practice, the American Medical Association, the Michigan State Medical Society and he was medical advisor to the Selective Service.

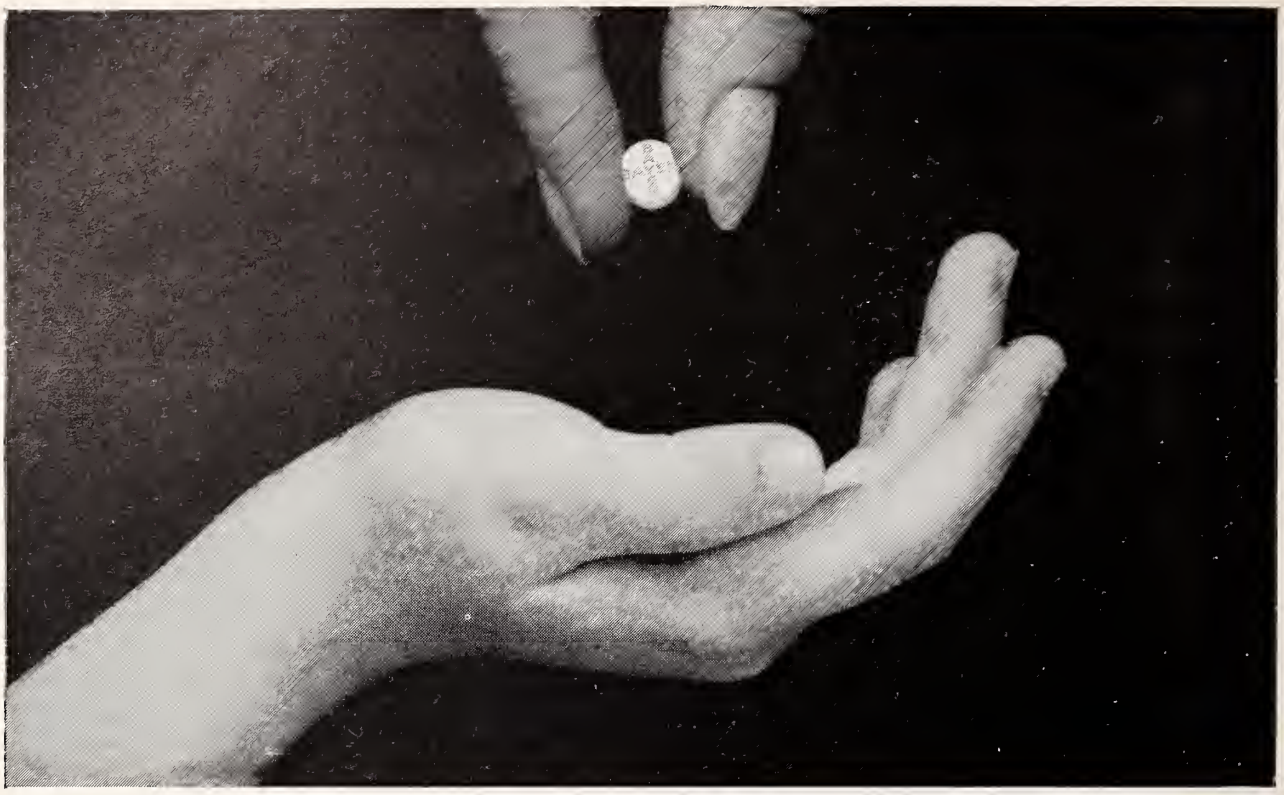
In 1957 he moved to West Branch, Michigan where he served on the staff of Tolfree Memorial Hospital until August of 1962 when he moved to St. Johns, Arizona for health reasons.

Doctor Waltz belonged to the Apache County Medical Society, the Arizona Medical Association and was Medical Director of Apache County. He had been staff physician at Farr-Whiting Memorial Hospital for the eight months prior to his death.

He studied music from childhood and financed his undergraduate and medical education by playing piano, organ and accordion. He did concert and entertainment work, directed his own orchestra, and toured the United States. He was also a radio station pianist, a theater and church organist and musical director of two of the country's largest hotel chains before finishing his medical training in 1942. He had been a member of the Detroit Federation of Musicians for over thirty years.

He was preceded in death by his father, mother and one brother. Survivors are his widow, Evelyn, a daughter, Linda, and a son, Geoffrey, all of St. Johns, Arizona, and a sister, Mrs. Lucille White of Princeton, Florida.

W. James Bursey, M.D.



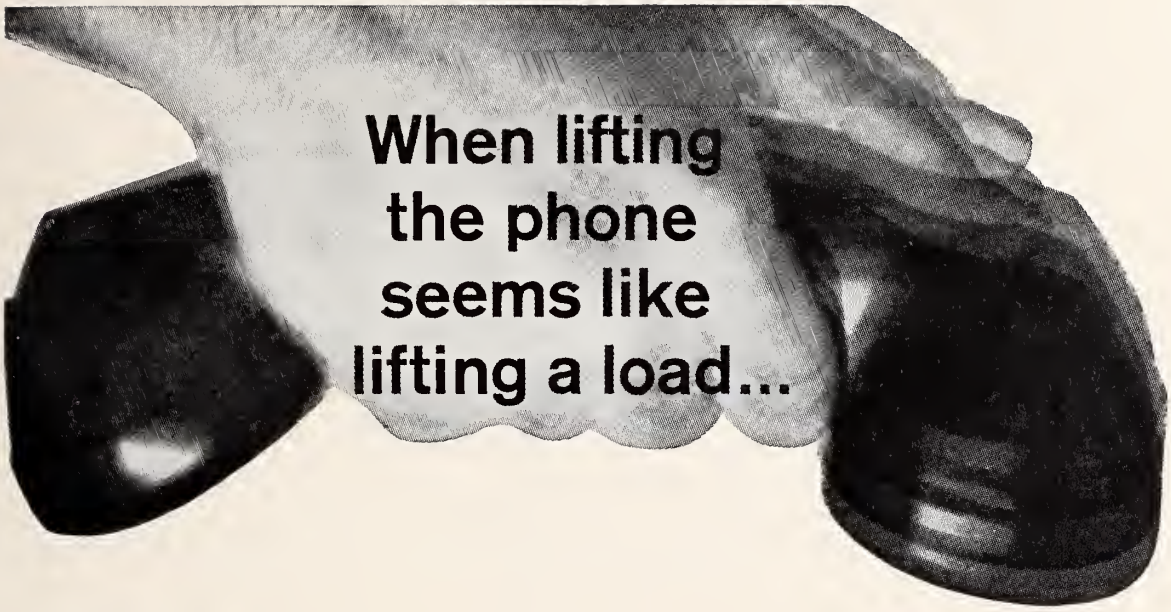
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1. Reeves, J. E.: *M. Times* 90:512, May, 1962. 2. Williams, M. H., Jr.: *M. Sc.* 11: 433, March 19, 1962. 3. Peckenschneider, L. E.: *J. Kansas M. Soc.* 56:486, Sept., 1955.

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"How NOT To Fight Against Socialized Medicine"

By AYN RAND

(This is a condensed version of a talk given by Miss Rand on February 6 at a meeting of the Ocean County Medical Society, Ocean County, N. J. The membership of that society includes Dr. J. Bruce Henriksen and his associates who, in May, 1962, signed his resolution declaring that they refused to participate in the care of patients under the provisions of the King-Anderson bill or similar legislation.)

I am happy to have this opportunity to express my admiration for Dr. Henriksen and the group of doctors who signed his resolution.

Dr. Henriksen and his group took a heroic stand. The storm of vicious denunciations unleashed against them at the time, showed that they had delivered a dangerous blow to the welfare-statists. More than any other single factor, it was Dr. Henriksen's group that demonstrated to the public the real nature of the issue, prevented the passage of the King-Anderson bill and saved this country from socialized medicine — so-far.

Their action was an eloquent example of the fact that only a strong, uncompromising stand — a stand of *moral* self-confidence, on clear-cut, consistent principles — can win.

But there are grave danger signs that the medical profession as a whole—like every other group today—will ignore that example and pursue the usual modern policy of caution and compromise. Such a policy is worse than futile: it assists and promotes the victory of one's own enemies. The battle is not over. The King-Anderson bill will be brought up again, and if the doctors are defeated, they will be defeated by their own hand, or rather: by their own mind.

I want, therefore, to make certain suggestions to the medical profession—on the subject of how *not* to fight against socialized medicine.

The majority of people in this country—and in the world—do not want to adopt socialism; yet it is growing. It is growing because its victims concede its basic moral premises. Without challenging these premises, one cannot win.

The strategy of the Kennedy administration, and of all welfare-statists, consists of attempts to make people accept certain intellectual "package-deals," without letting them identify and differentiate the various elements—and equivocations—involved. The deadliest of such "package-deals" is the attempt to make people accept the collectivist-altruist principle of self-immolation under the guise of mere kindness, generosity or charity. It is done by hammering into people's minds the idea that *need* supersedes all rights—that the need of some men is a first mortgage on the lives of others—and that everything should be sacrificed to the undefined, undefinable grab bag known as "*the public interest.*"

Doctors have no chance to win if they concede that idea and help their enemies to propagate it.

Yet the ideological policy of most spokesmen for the medical profession—such as the A.M.A.—is as permeated by the collectivist-altruist spirit as the pronouncements of the welfare-statists. The doctors' spokesmen declare, in net effect, that selfless service to their patients is the doctors' only goal, that concern for the needy is their only motive, and that "the public interest" is the only justification of their battle.

The sole difference is this: the voices of the welfare-statists are brazenly, self-righteously overbearing—while the voices of the doctors' spokesmen are guiltily, evasively apologetic.

Whom can one expect the people to believe and to follow?

People can always sense guilt, insincerity, hypocrisy. The lack of a morally righteous tone, the absence of moral certainty, have a disastrous effect on an audience —an effect which is not improved by the triviality of the arguments over political minutiae. And the terrible thing is that the doctors' spokesmen give an impression of guilty evasiveness while *the right is on their side.* They do it by being afraid to assert their rights.

They are afraid of it because they do not believe that they possess any rights—because they have conceded the enemy's premises—because they have no moral base, no intellectual guide lines, no ideology, no defense.

Consider, for instance, the outcome of the Canadian doctors' struggle in Saskatchewan. The doctors had gone on strike against the full-scale socialized medicine instituted by the provincial government. They won the battle —and lost the war; in exchange for a few superficial concessions, they surrendered the principle for which they had been fighting; to permit no socialized medicine in the Western hemisphere.

They surrendered, even though the overwhelming sympathy and support of the Canadian people were on their side (except for *the intellectuals* and the labor unions). They were defeated, not by the power of the socialists, but by the gaping holes in their own ideological armor.

They had been fighting, properly, in the name of individual rights, against the enslavement of medicine by totalitarian-statist controls. Then, under the pressure of the usual intellectual lynching, under the hysterical, collectivist charges of "anti-social selfishness and greed," they made a shocking change in their stand. Declaring, in effect, that their rebellion was not directed against socialized medicine as such, but against the high-handed, arbitrary manner in which the government had put it over, their spokesmen began to argue that the government plan did not represent "the will of the people." The ideological kiss of death was a statement by Dr. Dalgleish, the strikers' leader, who declared that if a *plebiscite* were taken and the people voted for it, the doctors would accept socialized medicine.

Could they deserve to win, after that? They could not and did not.

Consider the full meaning of Dr. Dalgleish's statement. It meant the total repudiation of individual rights and the acceptance of unlimited majority rule, of the collectivist doctrine that the people's vote may dispose of an individual in any way it pleases. Instead of a battle for the integrity of a doctor's professional judgment and practice, it became a battle over *who* should violate his integrity. Instead of a battle against the enslavement of medicine, it became a battle over *who* should enslave it. Instead of a battle for freedom, it became a battle over a choice of masters. Instead of a moral crusade, it became a petty quarrel over political technicalities.

This led to the ludicrous spectacle of the alleged individualists arguing for democratic mob-rule, and the socialists righteously upholding the parliamentary form of government.

Those who doubt the power of ideas, should note the fact that the doctors' surrender took place five days after Dr. Dalgleish's statement.

The text of the agreement reached between the doctors and the government, contained the following horrifying sentence: "The doctors fear that if the government becomes their only source of income they are in danger of becoming servants of the state and not *servants of their patients.*" (Italics mine.)

A more abject statement of self-abnegation could not be hoped for or extorted by the most extreme collectivist.

No self-respecting labor union would declare that its members are "*servants*" of their employers. It took so-called "conservatives" to declare that professional men—and of so responsible, so demanding, so unusually skilled a profession as medicine — are the "servants" of their patients or of anyone who pays them.

The concept of "service" has been turned into a collectivist "package-deal" by means of a crude equivocation and a cruder evasion. In the language of economics, the word "service" means *work* offered for trade on a free market, to be paid for by those who choose to buy it. In a free society, men deal with one another by voluntary, uncoerced exchange, by mutual consent to mutual profit, each man pursuing his own rational self-interest, none sacrificing himself or others; and all values—whether goods or services—are *traded*, not given away.

This is the opposite of what the word "service" means in the language of altruist ethics: to an altruist, "service" means unrewarded, self-sacrificial, unilateral *giving*, while receiving nothing in return. It is this sort of selfless "service" to "society" that collectivists demand of all men.

One of the grotesque phenomena of the twentieth century is the fact that the "package-deal" of "service" is most vociferously propagated by the "conservatives." Intellectually bankrupt, possessing no political philosophy, no direction, no goal, but clinging desperately to the ethics of altruism, such "conservatives" rest their case on a cheap equivocation: they proclaim that "service" to others (to one's customers or clients or patients or "consumers" in general) is the motive power and the moral justification of a free society—and evade the quesion of whether such 'services" are or are not to be paid for.

But if "service" to the "consumers" is our primary goal, why should these masters pay us or grant us any rights? Why shouldn't they dictate the terms and conditions of our work?

If socialized medicine comes to the United States, it is such "conservatives" that the doctors would have to thank for it, as well as their own spokesmen who recklessly play with an intellectual poison of that kind.

Doctors are *not* the servants of their patients. No free man is a "servant" of those he deals with. Doctors are *traders*, like everyone else in a free society — and they should bear that title proudly, considering the crucial importance of the services they offer.

The pursuit of his own productive career is—and, morally, should be—the primary goal of a doctor's work, as it is the primary goal of any self-respecting, productive man. But there is no clash of interests among rational men in a free society, and there is no clash of interests between doctors and patients. In pursuing his own career, a doctor does have to do his best for the welfare of his patients. This relationship, however, cannot be reversed: one cannot sacrifice the doctor's interests, desires and freedom to whatever the patients (or their politicians) might deem to be their own "welfare."

Many doctors know this, but are afraid to assert their rights, because they dare not challenge the morality of altruism, neither in the public's mind nor in their own. Others are collectivists at heart, who believe that socialized medicine is morally right and who feel guilty while opposing it. Still others are so cynically embittered that they believe that the whole country consists of fools or parasites eager to get something for nothing—that morality and justice are futile—that ideas are impotent—that the cause of freedom is doomed—and that the doctors' only chance lies in borrowing the enemy's arguments and gaining a brief span of borrowed time.

This last is usually regarded as the "practical" attitude for "conservatives."

But nobody is as naive as a cynic, and nothing is as impractical as the attempt to win by conceding the enemy's premises. How many defeats and disasters will collectivism's victims have to witness before they become convinced of it?

In any issue, it is the most consistent of the adversaries who wins. One cannot win on the enemy's premises, because *he* is then the more consistent, and all of one's efforts serve only to propagate *his* principles.

Most people in this country are not moochers who seek the unearned, not even today. But if all their intellectual leaders *and the doctors themselves* tell them that doctors are only their "selfless servants," they will feel justified in expecting and demanding unearned services.

When a politician tells them that they are entitled to the unearned, they are wise enough to suspect his motives; but when the proposed victim, the doctor, says it too, they feel that socialization is safe.

If you are afraid of people's irrationality, you will not protect yourself by assuring them that their irrational notions are right.

The advocates of "Medicare" admit that their purpose is not help to the needy, the sick or the aged. Their purpose it to spare people "the embarrassment" of a means test—that is, to establish the principle and precedent that some people are entitled to the unrewarded services of others, not as charity, but as a *right*.

Can you placate, conciliate, temporize or compromise with a principle of that kind?

As doctors, what would you say if someone told you that you must not try to *cure* a deadly disease—you must give it *some* chance—you must reach a "compromise" with cancer or with coronary thrombosis or with leprosy? You would answer that it is a battle of life or death. The same is true of your political battle.

Would you follow the advice of someone who told you that you must fight tuberculosis by confining the treatment to its symptoms—that you must treat the cough, the high temperature, the loss of weight—but must refuse to consider or to touch its cause, the germs in the patient's lungs, in order not to antagonize the germs?

Do not adopt such a course in politics. The principle—and the consequnces—are the same. It *is* a battle of life or death.

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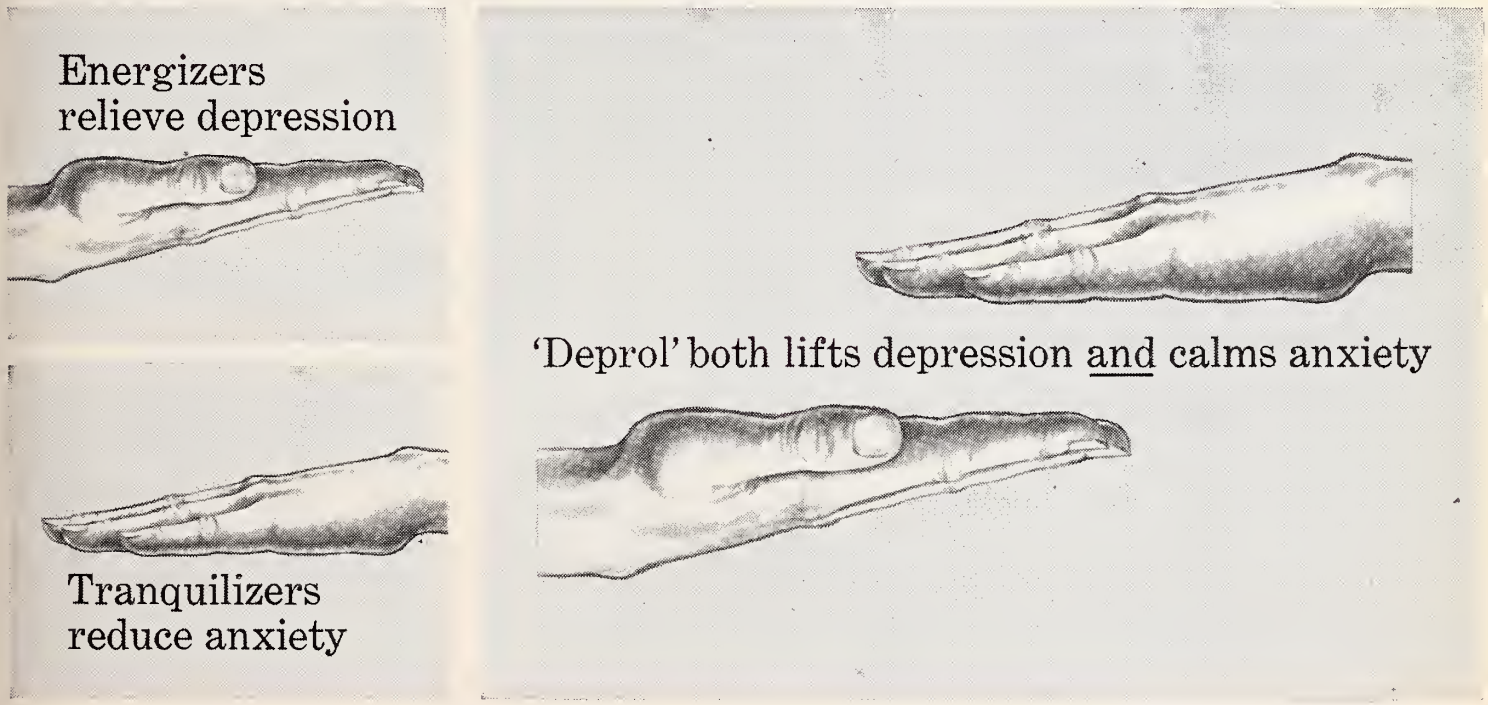
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Medical Assistants Meet

THE second annual state convention of the Arizona Medical Assistants Association was held at the Ramada Inn, Phoenix, June 7 through 9, 1963.

Representatives and delegates from Chandler, Flagstaff, Mesa, Phoenix, Prescott, Tucson and Winslow were present.

Speakers for the convention included Robert Matte, M.D., and Miss Shirley Stinson of the Southwest Preparatory School in Phoenix, Irene Josselyn, M.D., Paul B. Jarrett, M.D., Raymond Jennett, M.D., Edward Sattenspiel, M.D., and Seymour Shapiro, M.D.

Elected officers for the coming year are Helen Gibbs, President, Phoenix (Robert Stark, M.D.); Jean Baker, President-elect, Tucson (Kenneth Baker, M.D.); Helen Booth, Vice President, Phoenix (Doctors Jennett, Sattenspiel and Lee) and Josephine Jensen, Treasurer, Tucson (D. W. Hass, M.D.)

Named Arizona Medical Assistant of the Year was Mrs. Dorothy Strandine, assistant to Doctor Stanford Hartman of Phoenix, and President-elect of the Maricopa County Association of Medical Assistants.



Mrs. Dorothy Strandine and Stanford Hartman, M.D., admire the placque presented to Mrs. Strandine for being named the Arizona Medical Assistant of the Year.

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The consultant will confirm the need for *VIG* and will telephone the Red Cross Blood Center here. Red Cross will arrange immediate delivery by the most rapid means available.

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Topics of Current Medical Interest

Ophthalmologists Form State Society

ARIZONA ophthalmologists recently met at the Francisco Grande Hotel in Casa Grande to adopt a constitution and by-laws and elect officers for their first state level society to be known as the Arizona Ophthalmological Society.

Newly elected officers for 1963-64 include Oscar Thoeny, M.D., Phoenix, President; James Calkins, M.D., Tucson, Secretary-Treasurer; and C. Truman Davis, M.D., Mesa, President-elect. Committee Chairmen include Emery Royce, M.D., Tucson, Nominations; and Robert F. Lorenzen, M.D., Phoenix, By-laws. Others attending the meeting and active in forming the society were Doctors John S. Aiello, Thomas W. Bauer, Roy E. Burgess, Lawrence Frazin, Charles C. Hedges, Jess H. Hull and Sam Gualtieri of Phoenix; Robert Blake, Sherwood Burr, Gerald J. Chessen, Roger Cole, A. K. Hansen, John H. Tedford and John J. Wild of Tucson; G. H. Dolmage and James Wootton of Mesa; and Charles G. Matheus of Yuma.

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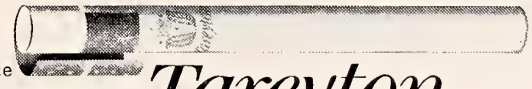
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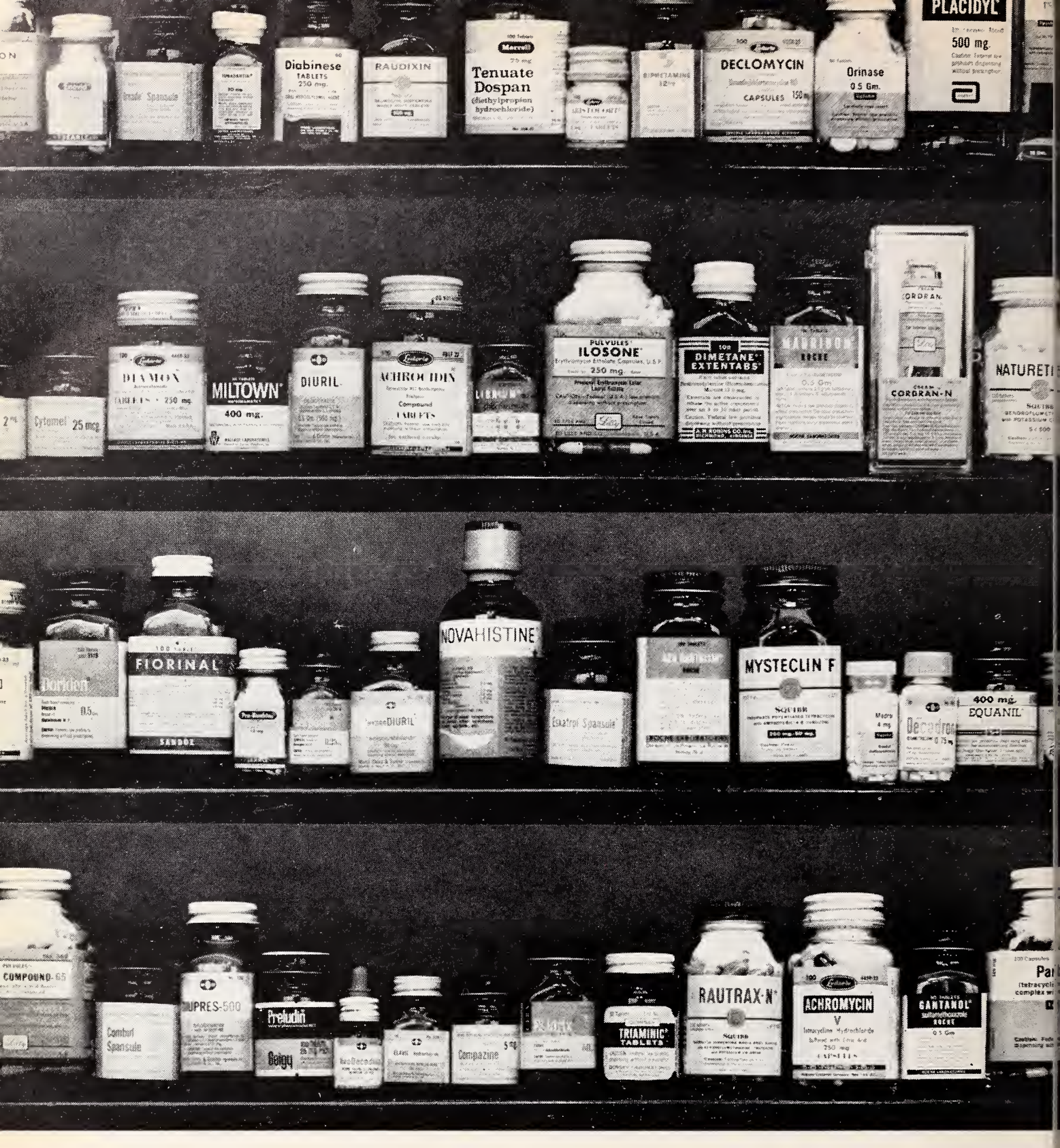
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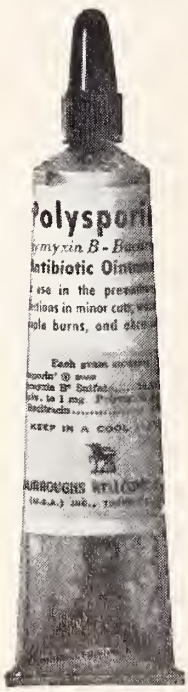
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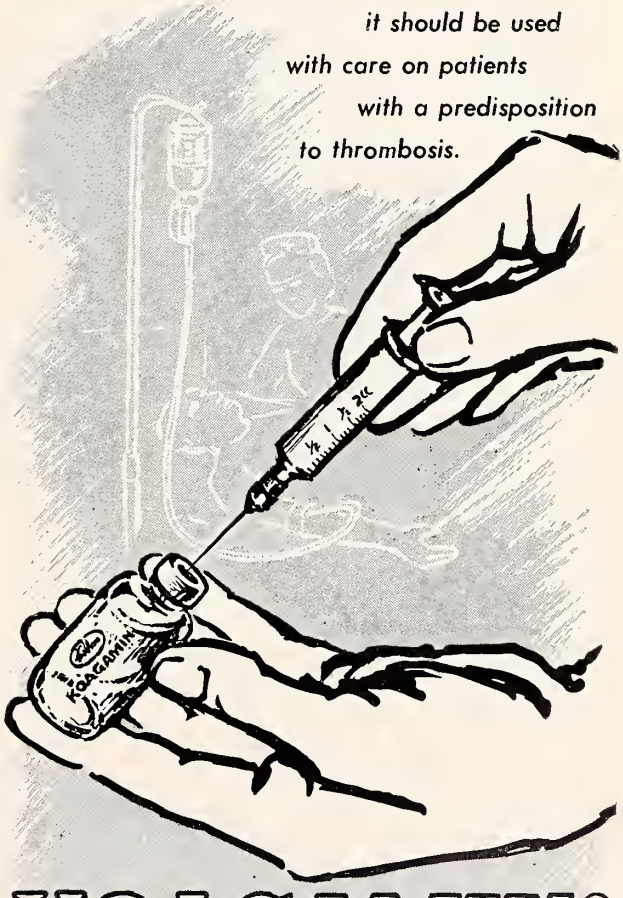
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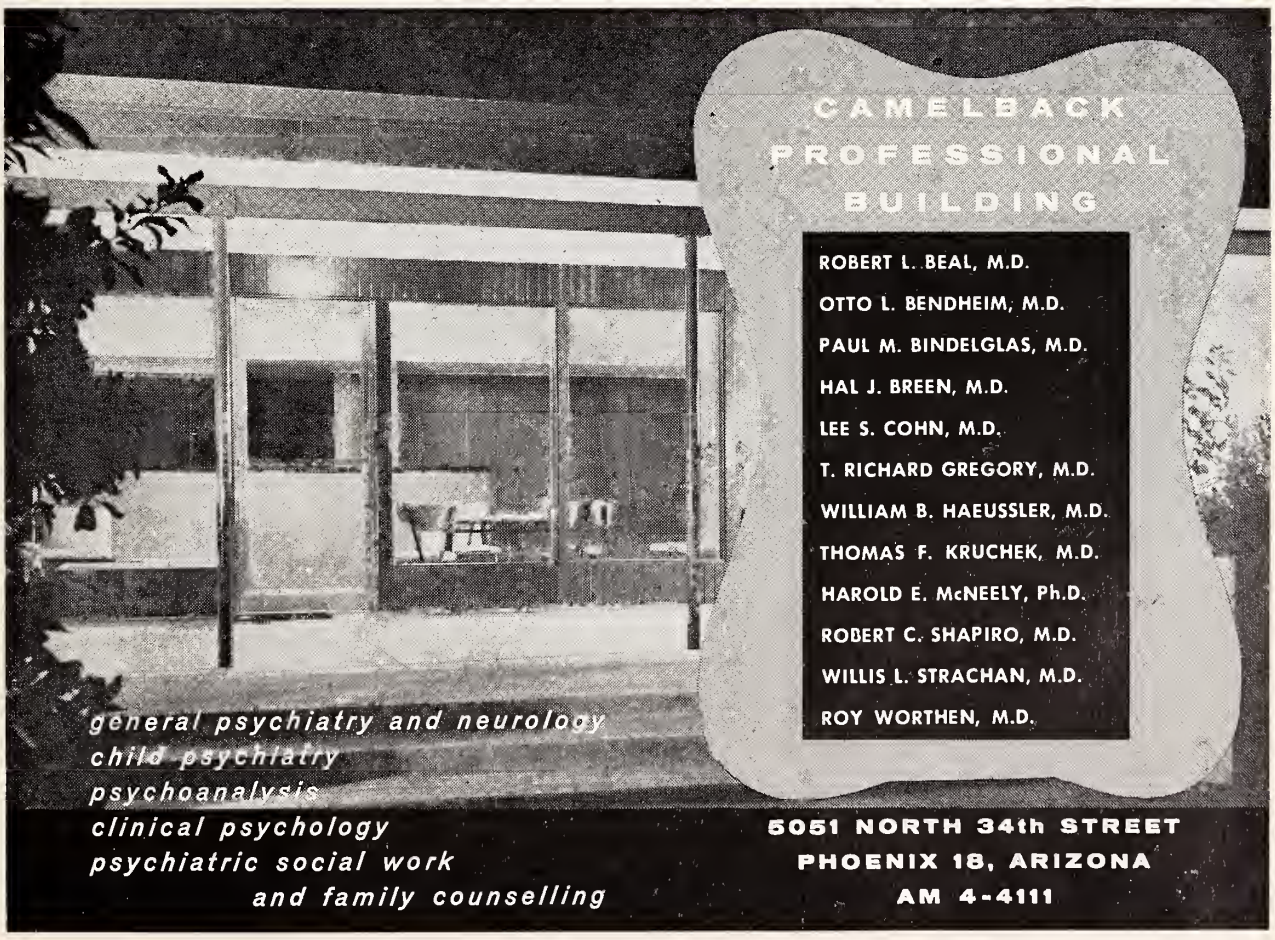
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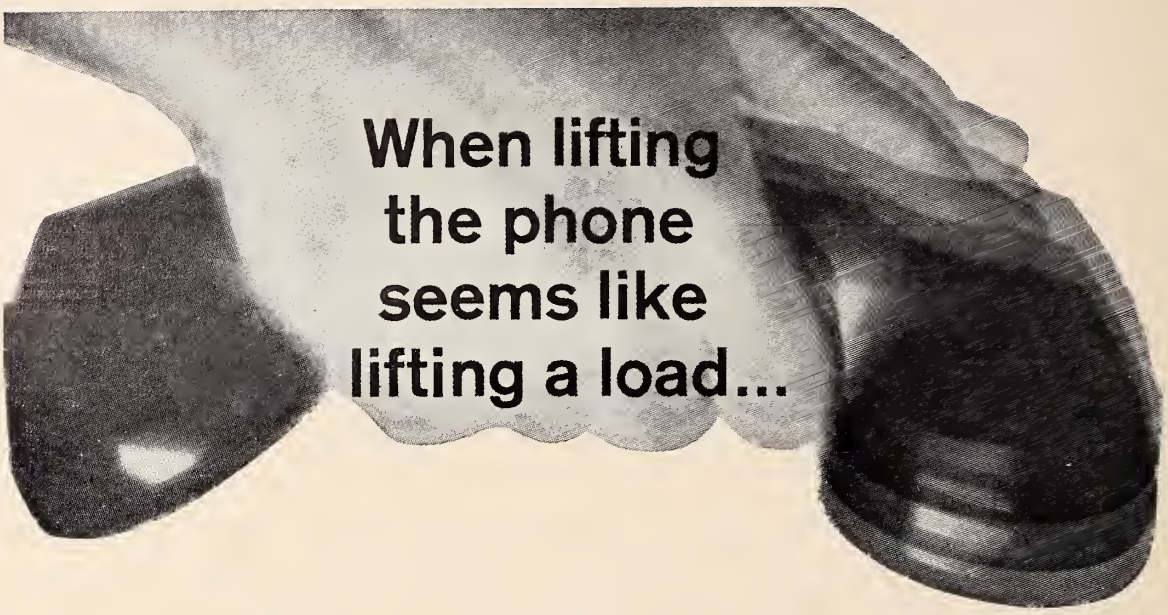
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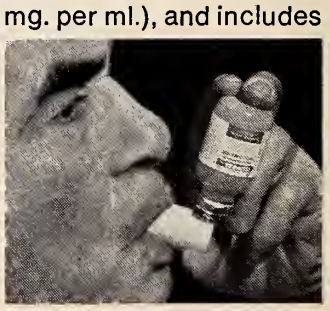
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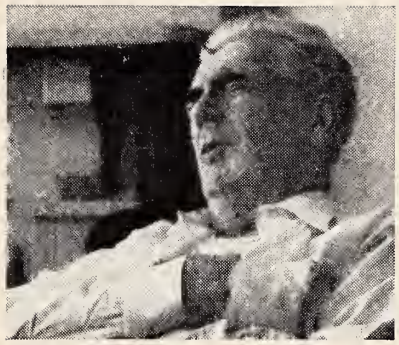
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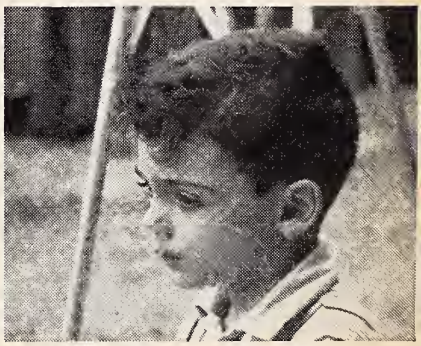
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ARTICLES OF INCORPORATION & BY-LAWS COMMITTEE AND AD HOC COMMITTEE FOR ARMA COMMITTEE STRUCTURE

RESUME OF JULY JOINT MEETING

Joint meeting of the Articles of Incorporation and By-Laws Committee with the ad hoc Committee for Study of ArMA Committee Structure of The Arizona Medical Association, Inc., held in the Central Offices of ArMA, Scottsdale, Arizona, Sunday, July 14, 1963, convened at 10:10 A.M., Walter Brazie, M.D., Chairman, presiding.

ROLL CALL

Articles of Incorporation and By-Laws Committee

PRESENT: Drs. Brazie, Walter, Chairman; Brewer, W. Albert, President-elect; Henderson, Charles E., Secretary.

EXCUSED: Drs. Beaton, Lindsay E., Jarrett, Paul E., Steen, William B., President.

ad hoc Committee for Study of ArMA Committee Structure

PRESENT: Drs. Baldwin, Earl R., Brazie, Walter, Brewer, W. Albert, Chairman (President-elect), Henderson, Charles E., Secretary, Wilson, John A.

EXCUSED: Drs. Steen, William B., President, Young, Woodson C.

AD HOC COMMITTEE FOR THE STUDY OF MEMBERSHIP OF THE BOARD OF DIRECTORS

Discussions ensued with particular reference to the purpose of the ad hoc Committee for the Study of Membership of the Board of Directors reported appointed by the Speaker of the House of Delegates in Annual Meeting held May 1, 1963, comprising: Doctors Robert A. Price (Phoenix) Chairman and Member-at-large; Noel G. Smith, (Phoenix) Central District; Arnold H. Dysterheft (McNary) Northeast District; Walter Brazie (Kingman) Northwest District; Donald E. Nelson (Safford) Southeast District; James E. O'Hare (Tucson) Southern District; and Paul J. Slosser (Yuma) Southwestern District. While there appears to be a duplication of interests in the several ad hoc committees appointed including this one and the ad hoc Committee for the Study of ArMA Committee Structure with that of the Articles of Incorporation and By-Laws Committee, certainly there should be no conflict and there is evidenced here a desire to work together in the common objectives.

Chapter V Election of Officers and Members of the Board is the immediate problem of the ad hoc Committee for the Study of Membership of the Board of Directors requiring thoughtful deliberation and evaluation to avoid the probability of a growing membership composite of the Board of Directors currently totalling twenty-three. While the amendment to the Articles of Incorporation, Article VII, increasing the membership to a maximum of thirty-five was and continues to be considered a "stop gap" provision, it is recognized that a membership of said Board unlimited in number will result in its becoming unwieldly and possibly ineffective in the scope and management of its activities.

A suggestion was offered that the membership composite of the Board of Directors might first be considered in the light of establishing a maximum number not to be exceeded. Included would be the President, President-elect, Vice-President, Secretary, Treasurer, Speaker of the House, Delegates and Alternates to AMA, Editor-in-Chief, and the Past-President, totalling twelve; then, each district might be entitled to one Director, regardless of total membership (this would add six for a total of eighteen); and then, develop some formula providing one additional Director for each two hundred members. When the total Board membership reaches say twenty-five, such formula could be adjusted to hold to the maximum established or reduce it.

It is reported that the ad hoc committee appointed to study this problem will wish to give deliberate consideration to the matter and the suggestion here is indicated only as a possible beginning point as certainly the Articles of Incorporation and By-Laws Committee, too, have an interest in this important provision.

DUES AND ASSESSMENTS — DELINQUENCY

Chapter IX Dues and Assessments — Section 1 Fixing of Annual Dues; Payments; Collections; Enforcement (b) provides in part "the annual dues and the dues and assessments of the American Medical Association shall be payable January first of the year for which levied and shall be delinquent after April first of that year.***."

Arthur V. Dudley, Jr., M.D., Treasurer of ArMA, by letter dated June 20, 1963, calls the attention of the Articles of Incorporation and By-Laws Committee to the problems confronting the orderly administration of the collection of dues and assessments including both those of ArMA and AMA through the component county medical societies with special emphasis upon the "delinquency" date. The problem was outlined in detail with the recommendation that the delinquency date be changed from April first of each year to February first, thus giving ample time to process the collections on both the county, state and national levels, eliminating much of the embarrassment to the member physicians who find themselves delinquent because of the lack of sufficient time to process the payment.

It was moved by Doctor Brewer, seconded and unanimously carried that Chapter IX Section 1 (b) be amended to the delinquency date February fifteenth.

Charles E. Henderson, M.D.
Secretary

PROFESSIONAL LIAISON COMMITTEE RESUME OF JULY MEETING

Meeting of the Professional Liaison Committee of The Arizona Medical Association, Inc., held Saturday, July 13, 1963, in the Central Offices, Suite 211, U-R Building, 4533 North Scottsdale Road, Scottsdale, Arizona, convened at 2:10 P.M., Hugh H. Smith, M.D., Chairman, presiding.

ROLL CALL

PRESENT: Drs. Brewer, W. Albert, President-elect; Henderson, Charles E., Secretary; Kurtz, Clyde W.; McKhann, George G.; Rowe, Harold J.; Secrist, Delbert L.; Smith, Hugh H., Chairman; Wagner, Albert G.

Staff: Carpenter, Robert, Executive Secretary; Ledwidge, Joseph A., Executive Assistant.

EXCUSED: Drs. Payne, William G.; Smith, Noel G.; Steen, William B., President.

ORGANIZATION — SUBCOMMITTEE ASSIGNMENTS

The following subcommittee assignments were made designating a Chairman in each instance from among the membership of this Professional Liaison Committee:

Allied Professions Clyde W. Kurtz, M.D.
Careers and Arizona AMEF....
Albert G. Wagner, M.D.
Governmental Medical Staffs....
William G. Payne, M.D.
Nurses—Medicine and Religion....
Delbert L. Secrist, M.D.
Public and School Health....Noel G. Smith, M.D.
Related Non-Official National Organizations
Harold J. Rowe, M.D.
Water and Air Pollution.George G. McKhann, M.D.
Woman's Auxiliary(To Be Designated)

ALLIED PROFESSIONS

In the field of "Podiatry" Doctor Kurtz reported that Rule No. 62-10 was adopted by the Arizona Insurance Commission and became effective January 1, 1963. It related to the payment for services rendered by podiatrists in cases of individual disability insurance. The hearing in this connection was held October 31, 1962. In the absence of Doctor Kurtz, Doctor Leo L. Tuveson was requested, consented and did attend the hearing. A detailed report thereon dated November 2, 1962 was presented and received. While no decision was made at this particular time as thercin reported, the Commission finally approved the adoption of a Rule recognizing payment for services rendered by podiatrists unless otherwise exempted by individual disability insurance coverage.

A communication from Boris Zemsky, M.D., Secretary-Treasurer of the Arizona Psychiatric Society, was presented and read indicating that said Society at its 1962 Fall meeting held in Wickenburg, Arizona, October 20 and 21, 1962, unanimously supported and approved a Bill for Certification of Psychologists as presented by the Arizona Psychological Association. It was concluded by the discussion group at the time of this meeting that it is considered impossible to devise any Bill which would completely control the practice of Psychology; however, it was the feeling that in general the Arizona Psychiatric Society should give approval to the psychologists' efforts to up-grade themselves and their qualifications. It was pointed out that when this measure was considered by the Legislative Committee of this Association and the Board of Directors, in the latter instance February 10, 1963, it was observed that a clear definition of psychology was absent from the content of the measure. It was then concluded that until such time as the psychologists can come up with a satisfactory definition of "Psychology" compatible with the definition of medical practice and limitation of practice, no action as regards certification of psychologists is recommended.

The Board of Directors in meeting held June 9, 1963, referred to its Professional Liaison Committee for review and comment or recommendation the matter presented by Guy B. Atonna, M.D., of Douglas, relating to the Arizona Pharmacy Law dealing with the sale to physicians of prescription legend drugs. It appears that the Arizona State Board of Pharmacy recently called to the attention of Merck, Sharp and Dohme of Los Angeles of the Arizona law in effect requiring all sales to physicians of prescription legend drugs (such as "Rubeovax", live attenuated measles virus vaccine) to be made through a licensed pharmacy. The law prohibits the direct sale of legend drugs by manufacturers or wholesalers to physicians. It is the feeling of Doctor Atonna that this law is discriminatory to a large group of physicians who do not have clinic or hospital administration connections making it impossible for physicians to buy direct from wholesale houses or manufacturers at lower prices. Recently a communication was received from the Law Department of the American Medical Association calling attention to a bulletin issued by the Arizona State Board of Pharmacy under date of May 24, 1963, directed to all pharmacies within the State of Arizona, calling attention to the "Pharmacists Responsibility to Supply Physicians Drug Needs". While that department considers it a rather extreme interpretation of the provisions of the Arizona law enacted in 1953, it seeks this Association's reaction to the position of the Pharmacy Board. It was determined that Doctor Kurtz should make contact with the President or the Secretary of the Arizona State Board of Pharmacy regarding this matter and report back to this Committee the results of the discussion.

CAREERS AND ARIZONA AMEF

It was determined that hereafter this Committee will be designated Careers and Arizona AMERF, the latter designation "AMERF" to coincide with the modification of the AMEF program adopted about a year ago by the American Medical Association.

Doctor Wagner reported upon activities relating to Arizona AMERF for the enlightenment of the Committee membership. This is a separate project of the two assignments given him (Careers and Arizona AMERF) and should be maintained as such. Certainly this Association should continue its support of the AMERF program and it is anticipated the national body will continue release of mailings to the membership of this Association urging financial support. The Woman's Auxiliary continues a very effective campaign contributing annually to AMERF and it is the hope such effort will be carried on. Attention was directed to a previous recommendation that an assessment of $10.00 be levied against the membership of the Association, $5.00 to be allocated to AMERF and $5.00 to the Benevolent and Loan Fund of the Association for use in connection with its Medical Student Loan Program. This was not accepted by the House of Delegates of the Association and in fact, the allocation of $10.00 of the dues collected as a collective Association contribution to AMERF has been discontinued.

Doctor Wagner presented in detail a report covering the accomplishments of the "Careers Program" conducted by the several component medical societies of the State which has had commendable results. The details of organization were reviewed and will be improved based upon experience in the past year with a view of improving and making more effective the results anticipated in the coming year. Doctor Wagner was commended for his efforts and administration of this program and he was urged to continue its development and effectiveness throughout the forthcoming school year.

NURSES — MEDICINE AND RELIGION

Doctor Secrist reported that there was no particular activity as regards "Nurses" occurring during the past year; however, his committee stands ready to confer with the nursing profession whenever occasion arises.

As regards 'Medicine and Religion", Doctor Secrist reviewed the program initiated by the Arizona Medical Association through the leadership of Reverend McCleave. Arizona was an initial pilot State in this effort in recognition of activity particularly on the part of the Maricopa County Medical Society, and it continues to be so recognized in the program to be pursued in the Fall of this year. Pima County Medical Society has been active to this end during the 1962-63 fiscal year and it is the hope that Arizona will continue its outstanding record associate with this program. A new film has been developed by AMA having its premiere during the recently concluded Annual Meeting in Atlantic City and will be used to good advantage in the months following.

PUBLIC AND SCHOOL HEALTH

Communication from the Arizona Congress of Parents and Teachers was presented for review in discussion referable to the establishment of a State Health Advisory Committee for Arizona to promote "Better Heatlth for More Children". Representation of this Association to join in forming such committee is solicited. It was determined that the Chairman of the Subcommittee on Public and School Health be designated to represent this Association.

Discussion ensued regarding the publication of the "Physicians Handbook" published by the Arizona State Department of Health providing information for the private physician relating to the public health program. It was directed that the Arizona State Department of Health be informed of this Association's appreciation for the effort put forth in the publication of the "Physicians Handbook"; however, it is its feeling that a re-issue at this time does not appear to be warranted.

RELATED NON-OFFICIAL NATIONAL ORGANIZATIONS

Doctor Rowe reported that possibly the one single issue referred to this Committee during the past fiscal year was the revised scope of operation of the National Foundation. It was pointed out, associate with its scholarship program, that apparently Arizona does not have representation on the Award Committee, however, it appears indicated that this State has received its share of recognition. Possibly this aspect should be given further consideration. The Foundation is now engaged in numerous allied fields through extension of its program outside the field of poliomyelitis and further report thereon might be anticipated received during the ensuing fiscal year.

WATER AND AIR POLLUTION

The Board of Directors of this Association in meeting held October 28, 1962, determined that matters dealing with water and air pollution now considered a public health problem shall hereafter be included in the activities of the Professional Liaison Committee, being transferred from the designated functions of the Professional Committee.

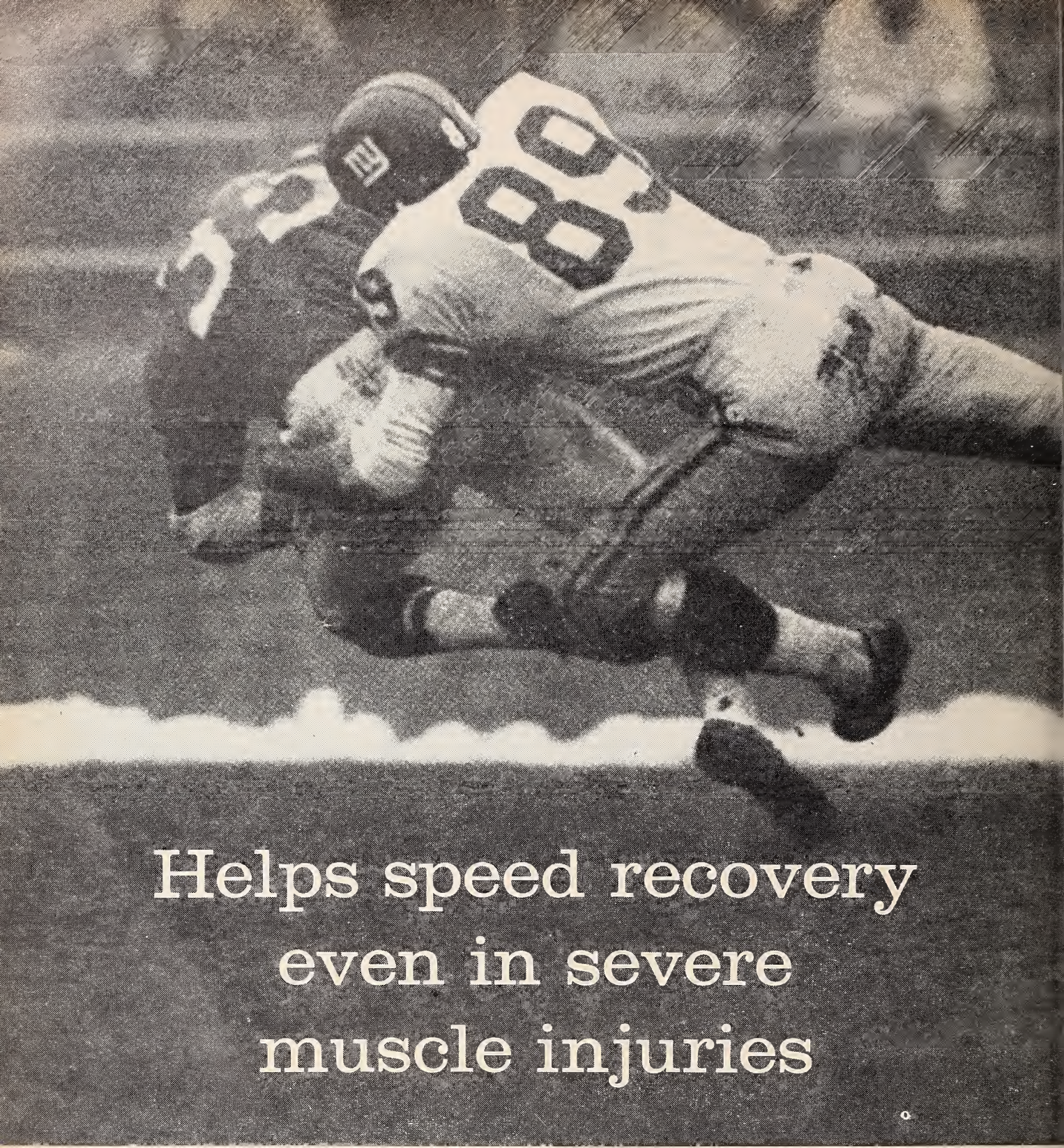
Doctor McKhann reported that in the membership composite of this subcommittee, certainly representation should include doctors of medicine from the Tucson area and other areas outside the Maricopa-Pima counties. This would make it possible to keep informed all areas within the State as to the progress being achieved and activities undertaken in the major metropolitan areas of Phoenix and Tucson. In Maricopa County under the County Health Department following enactment of legislation dealing with water and air pollution, enforcement of regulations is being pursued and the collection of information and statistics are being accumulated. A program of education on the merits of and need for water and air pollution control is likewise being pursued, essential to the success and achievement of the objectives. This Committee will be kept advised of developments in the months ahead.

Charles E. Henderson, M.D.
Secretary

AMERICAN HEALTH CREDIT PLAN OF ARIZONA, INC.

The Board of Directors of ArMA has been asked its opinion regarding the above "credit card plan" for medical care. This is a plan whereby a patient member pays an annual fee and the physician, dentist, hospital or drug store is charged a service fee of seven per cent of the amount of the bill. In their brochure it is pointed out that "this is a substantial source of revenue for the American Health Credit Plan, Inc., investors."

On recommendation of the Medical Economics Committee of The Arizona Medical Association, Inc., the Board of Directors of ArMA has determined that the Arizona Medical Association would not endorse such programs.



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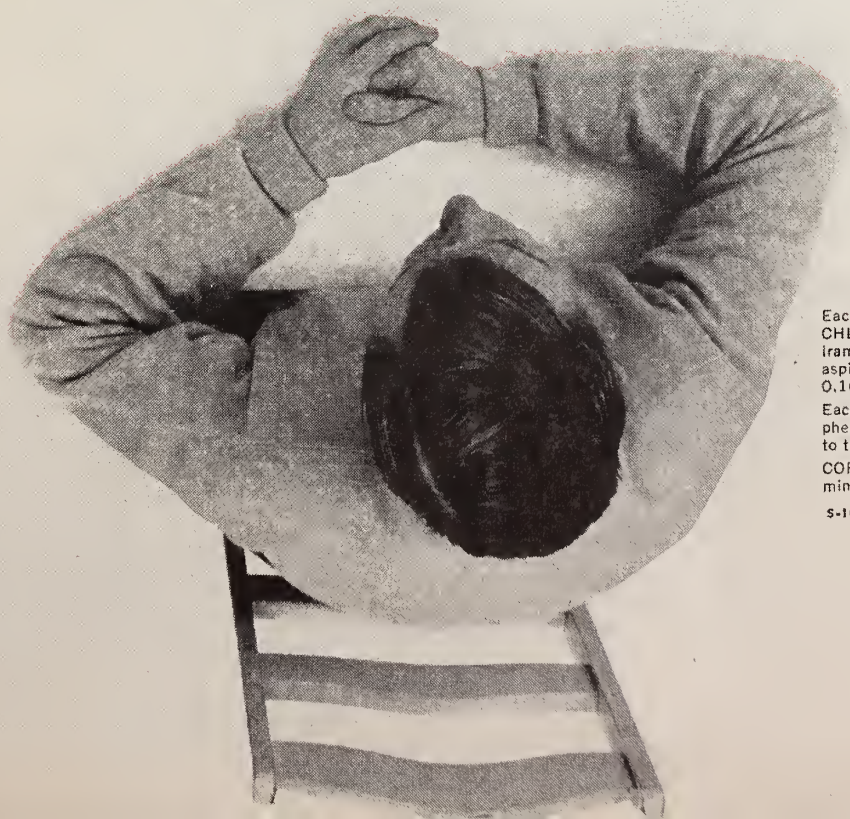
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Disorders of Esophageal Motility: Diagnosis and Surgical Treatment

by
F. Henry Ellis, Jr., M.D.

The esophagus functions in many mysterious ways and it is only recently that any enlightenment has been forthcoming relative to abnormalities in its function. By understanding the normal function of the esophagus it is not too difficult to understand why certain symptoms are present in the disorders described. The term "achalasia" is well defined and the disease it describes is thoroughly outlined. Likewise, a spasm of the esophagus, which is little understood other than the pain arising from such source, is discussed. The so-called hypertensive gastroesophageal sphincter is also mentioned similarly.

In all of these disease entities the Heller operation appears to offer the best form of therapy when operative procedures must be resorted to following more conservative trials with hydrostatic dilation. The end results from the operation appear to be lasting and prevail over a long period of time

ADVANCES in surgical technic and in other aspects of the surgical management of patients with esophageal disease have made it possible to carry out a wide variety of extensive operative procedures on this organ with relatively low mortality and morbidity rates. Unfortunately these remarkable advances have not always been matched by similar advances in our basic understanding of the function of the esophagus. Recently, however, the physiology of this organ has been clarified by various means, including roentgenography, cineradiography, and most especially by the use of esophageal motility studies.*[1] Information derived from this latter mode of investigation forms the basis of this report as it relates to the function of the normal and of the abnormal esophagus.

Section of Surgery, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

Read before the staff of the Tucson Medical Center, Tucson, Arizona, March 12, 1962.

*These studies have been performed in the laboratory of Dr. C. F. Code.

Normal Esophageal Function

The function of the esophagus is to convey material from the pharynx to the stomach and sometimes vice versa. At the upper end of this tube there is a sphincter which prevents easy access of air from above and at its lower end another sphincter exists to prevent reflux of gastric contents. At the beginning of deglutition, elevated pressures are developed in the hypopharynx accompanied by relaxation of the upper sphincter. The sphincter immediately contracts thereafter and the primary peristaltic wave of the esophagus is thus initiated. This wave traverses the body of the esophagus in an orderly fashion, the intensity of the waves varying between 50 and 100 cm. of water. Pressure records from the esophagogastric junction show that the band of elevated pressure at the cardia, the so-called inferior esophageal sphincter, is abolished about 2 seconds after swallowing is initiated (fig. 1). This relaxation of the lower end of the esophagus is followed by a wave of high pressure as the

peristaltic wave rolls through the sphincter. Although considerable controversy remains as to the true nature of the gastroesophageal sphincter mechanism, there is good evidence that the inferior esophageal sphincter, which can be demonstrated physiologically[2] if not anatomically, is one of the main guardians of the lower part of the esophagus, protecting it from the reflux of gastric contents.

Disordered Esophageal Motility

Disorders of esophageal motility may be divided into two main groups, those conditions characterized by hypomotility and those characterized by hypermotility (table). The former is typified by the condition known as cardiospasm or achalasia of the esophagus, and the latter by three conditions, namely, diffuse spasm of the esophagus, hypertensive gastroesophageal sphincter, and localized esophageal spasm.

Table
Disorders of Esophageal Motility

Hypomotility
Achalasia of the esophagus
Hypermotility
Diffuse spasm
Hypertensive gastroesophageal sphincter
Localized spasm

Achalasia of the Esophagus.—Achalasia of the esophagus or, as it is more commonly but inaccurately known, cardiospasm, is a disease of unknown etiology characterized by a disturbance in asophageal motility. Symptoms are due primarily to failure of the lower esophageal sphincter to relax during the act of swallowing. Practically all patients complain of dysphagia, which may at first be intermittent but becomes constant as the disease progresses. Pain is a relatively infrequent symptom occurring usually in the early stages of the disease and becoming less prominent as the esophagus dilates.

The earliest roentgenologic signs of cardiospasm are those of obstruction. As the disease progresses, the classic roentgenologic signs develop. The esophagus is dilated, the lower portion of the lumen appears conical and narrowed with a beaklike extension directed into the spastic segment (fig. 2). The esophagus may reach huge proportions at times so that it may be visualized on the ordinary thoracic roentgenogram.

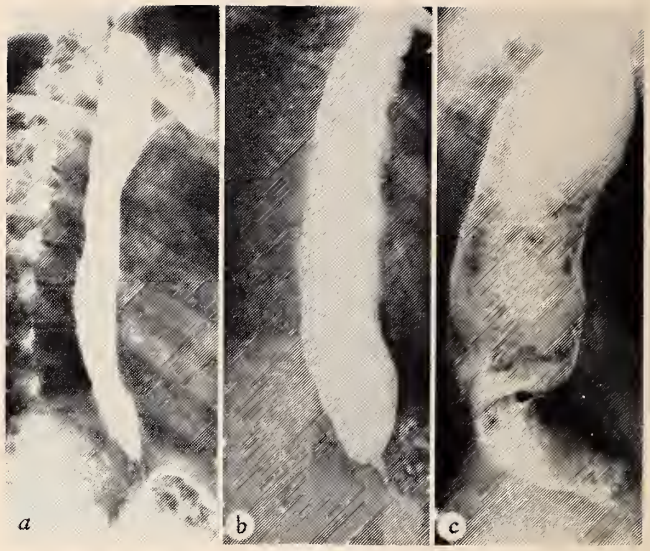


Fig. 2

Appearance of esophagus in different stages of esophageal achalasia. a. Mild; b. moderate; c. severe. (From Ellis, F. H., Jr., Olsen, A. M., Holman, C. B., and Code, C. F.: Surgical Treatment of Cardiospasm (Achalasia of the Esophagus): Considerations of Aspects of Esophagomyotomy. J.A.M.A. 166:29-36 (Jan. 4) 1958.)

Studies of esophageal motility in achalasia demonstrate a lack of coordinated peristaltic motility in the body of the esophagus and failure of relaxation of the lower esophageal sphincter after deglutition[3] (fig. 1). Resting pressures at the sphincter in patients with achalasia are similar to those of normal persons. The same band of elevated pressure is recorded, but it is no greater than in health. There is, therefore, no true spasm in cardiospasm, and the term "achalasia of the esophagus" is more appropriate.

Proper treatment for achalasia of the esophagus is designed to relieve obstruction of the lower part of the esophagus. At the present stage of knowledge, nothing can be accomplished to restore peristalsis to the body of the esophagus. Forceful dilation has been employed in the treatment of this disease for many years with varying degrees of success. Results with hydrostatic dilation indicate that permanent relief has been obtained in about 60 per cent of the cases after a single course of treatment. Of the remaining 40 per cent, about half experienced permanent relief after further courses, while the other half did not respond to this treatment or required periodic dilations.[4] This method is not without some risk, and a split of the esophagus has occurred in 2 per cent of the patients. Although the method of forceful dilation has

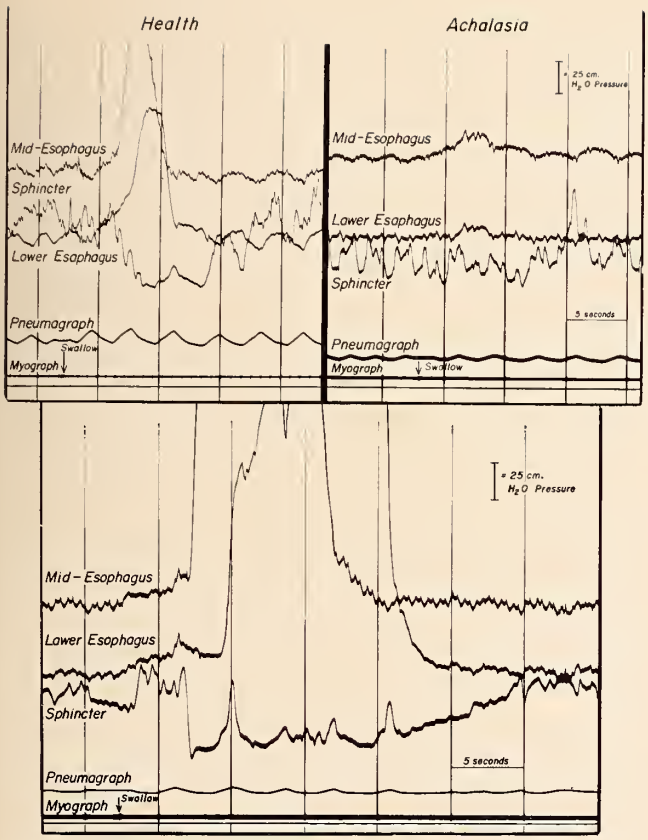


Fig. 1.

Esophageal motility records in response to deglutition in health (upper left), achalasia (upper right), and diffuse spasm of the esophagus (lower panel). Note the orderly peristalsis in the body of the esophagus with relaxation of the sphincter in health contrasted with the feeble simultaneous esophageal contractions and no sphincteric relaxation in achalasia. The esophageal contractions are excessive in magnitude and duration in diffuse spasm, but sphincteric relaxation occurs. (From Ellis, F. H., Jr., Code, C. F., and Olsen, A. M.: Long Esophagomyotomy for Diffuse Spasm of the Esophagus and Hypertensive Gastroesophageal Sphincter. Surgery. 48:155-169 (July) 1960.)

served a useful purpose, it has definite limitations.

The wave of enthusiasm for surgical procedures which destroy or bypass the esophagogastric junction has fortunately nearly subsided. These procedures, including esophagogastrectomy and the various cardioplasties, including the Wendel and Hierovsky-Grondahl types, have led almost uniformly to the development of severe and sometimes fatal esophagitis.[5,6] These operations should be abandoned.

In 1913 Heller[7] described an operation, modifications of which have been used by all surgeons reporting good results. A thoracic approach is preferred with careful longitudinal incision of the distal esophageal musculature with minimal extension onto the stomach[8] (fig. 3). Care is taken to avoid damage to the vagus nerves and to restore the hiatal anatomy to normal if necessary. If properly performed, esophagomyotomy should not lead to gastroesophageal reflux, and postoperative esophagitis should be a rare complication.

In more than 225 operations of this type which have been performed at this clinic no deaths have occurred, and the complications have been rare and minor. A follow-up study of all patients operated on prior to July, 1959, showed that 93 per cent experienced improvement in their condition as a result of the operation.[9] Approximately 80 per cent of the group obtained either excellent or good results; 15 per cent, although definitely better, continued to experience some episodes of dysphagia, regurgitation, or distress, so that the results were considered to be only fair. Seven patients were classified as obtaining poor results and are considered to reflect surgical failure. The follow-up period averaged 4.8 years.

A recognizable decrease in esophageal caliber occurred in only half of the patients reviewed. Of more significance, however, is the fact that in only one patient have we been able to demonstrate any evidence of gastroesophageal reflux after operation. No patient was found to have a diaphragmatic hernia, and there was no evidence of pyloric obstruction.

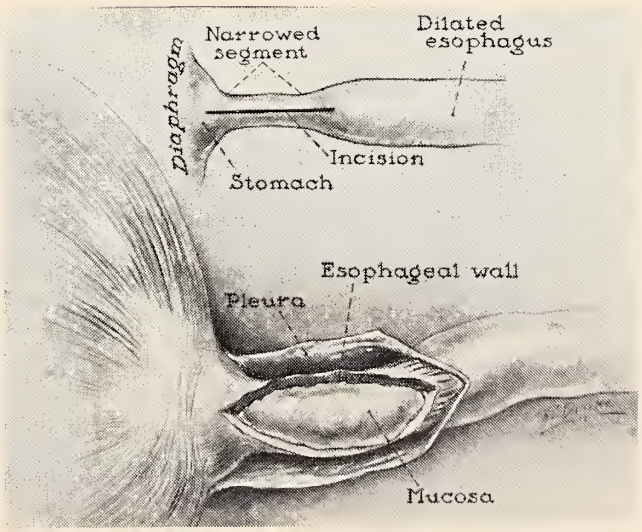


Fig. 3.

Esophagomyotomy employed in the surgical treatment of achalasia of the esophagus. (From Ellis, F. H., Jr., Olsen, A. M., Holman, C. B., and Code, C. F.: Surgical Treatment of Cardiospasm (Achalasia of the Esophagus): Considerations of Aspects of Esophagomyotomy. J.A.M.A. 166:29-36 (Jan. 4) 1958.)

Postoperative esophageal motility records show complete abolition of the suprahiatal portion of the band or zone of increased pressure at the inferior esophageal sphincter. The subhiatal portion of this band of elevated pressure is partially retained after operation, and this remnant is sufficient to prevent esophageal reflux.[10] The pressure in the remnant, however, is low enough to be overcome by the pressure built up within the esophagus after deglutition. In contrast to these definite alterations in the sphincter after operation are the findings in the body of the esophagus. Although resting pressures in the body of the esophagus fall, the motility pattern remains abnormal. Simultaneous contractions of the esophagus persist, and the peristaltic wave of deglutition is not restored.

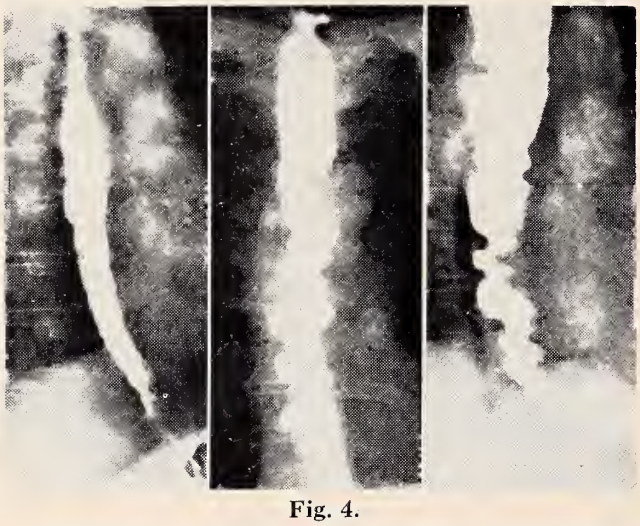


Fig. 4.
Esophageal roentgenograms in patients with diffuse spasm. (From Olsen, A. M., Ellis, F. H., Jr., and Creamer, Brian: Cardiospasm (Achalasia of the Cardia). Am. J. Surg. 93:299-307 (Feb.) 1957.)

Surgical treatment is clearly indicated for the patient who fails to respond to hydrostatic dilation or in whom a recurrence develops thereafter. Because of the consistently good results obtained esophagomyatomy is being used at this clinic as a primary form of treatment in increasing numbers of patients.

Diffuse Spasm. — Diffuse spasm of the esophagus, also referred to as "pseudodiverticulosis," "functional diverticula," "segmental spasm," and "curling" or "corkscrew" esophagus, is a disorder of esophageal motility characterized by hyperactivity. Pain and dysphagia are the predominant symptoms with pain being more pronounced and dysphagia occurring intermittently or not at all. The pain varies from a sensation of discomfort beneath the lower half of the sternum to severe colicky substernal pain extending through to the back between the tips of the scapulae and into the neck or shoulders and arms. It may mimic cardiac pain. Eating may provoke an attack of pain or it may come on spontaneously and may even awaken the patient at night. Patients with this disease tend to be highstrung and nervous, and the diagnosis of psychoneurosis may be entertained. Symptoms are intermittent and more likely to be troublesome than incapacitating. Even in an attack, the patient seldom seems to be seriously ill.

Examination of the esophagus after the ingestion of barium is rarely diagnostic but may demonstrate distortion of the lower half or third of the esophagus characterized by spasm. All variations of spasm may be seen, ranging from simple narrowing to segmental spasm and finally to the extreme changes of pseudodiverticulosis, complete segmentation of the esophagus into pockets producing a beaded appearance (fig. 4). Frequently an associated small diaphragmatic hernia is found.

A specific abnormal pattern of deglutitive pressures is present in patients with diffuse spasm.[11] In the lower half or third of the esophagus, contractions occur simultaneously and repetitively and are of abnormal amplitude and duration (fig. 1). The inferior esophageal sphincter usually relaxes normally in response to swallowing.

Hypertensive Gastroesophageal Sphincter. — Usually a hypertensive gastroesophageal sphincter occurs in association with diffuse spasm of the esophagus, but it may occur as an isolated finding. Excessive pressures in excess of 140 cm. of water exist in the region of the inferior sphincter[12] (fig. 5). Motility in the body of the esophagus is normal when diffuse spasm is absent. Symptoms, however, are similar to those experienced by patients with diffuse spasm. Roentgenograms of the esophagus are usually nondiagnostic, although a small diaphragmatic hernia may coexist.

Localized Esophageal Spasm. — Rarely a patient without associated disease may have a localized spastic portion in the esophagus and may experience severe periodic substernal pain. The etiology of this condition is unknown, and accurate diagnosis requires the use of esophageal motility studies.

Most patients with hyperactive disorders of the esophagus are not greatly troubled by their symptoms, so that treatment is rarely necessary. Treatment may be required, however, if the pain is severe and the attacks are frequent. Medical treatment, including esophageal dilation, has been disappointing. Psychiatric therapy has been equally unrewarding.

The operative procedure is in most respects identical to that performed for achalasia of the esophagus.[13] The esophagus is exposed through a left thoracotomy. Esophagomyotomy is done with complete incision of the distal esophageal musculature. The approximate extent of the incision varies depending on the preoperative estimate of the length of the diseased portion of the esophagus. Occasionally the muscle appears abnormally thickened in these patients. The proximal limit of the incision varies from a point opposite the inferior pulmonary vein to a point in a few patients just below the aortic arch. An incision of adequate length is of most importance (fig. 6).

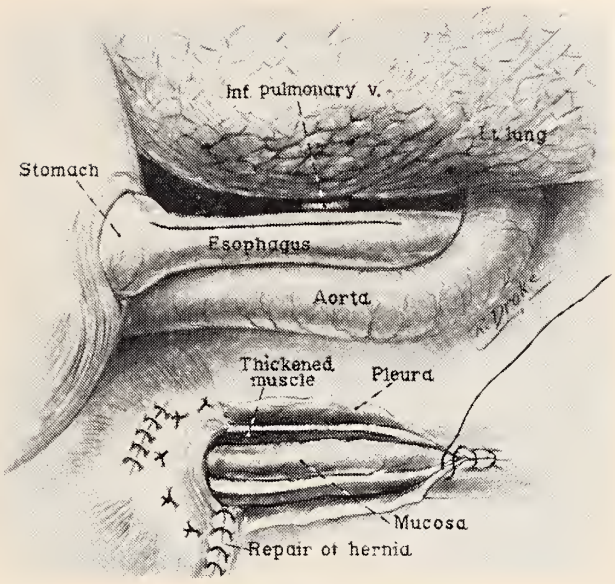


Fig. 6.

Drawing of long esophagomyotomy and repair of hiatal hernia employed with surgical treatment of diffuse esophageal spasm. (From Ellis, F. H., Jr., Code, C. F., and Olsen, A. M.: Long Esophagomyotomy for Diffuse Spasm of the Esophagus and Hypertensive Gastroesophageal Sphincter. Surgery. 48:155-169 (July) 1960.)

As in patients operated on for achalasia of the esophagus, attention is given to the status of the esophageal hiatus. If it is widened, it is narrowed by sutures placed posteriorly in the crus. Because a small diaphragmatic hernia frequently is present, its repair becomes an integral part of the procedure. In all likelihood, these hernias are secondary to the primary esophageal disease.

Thirty-six patients have been operated on by this technic without mortality or significant morbidity. Follow-up data in 19 of the first 20 patients operated on have been presented previously.[13] Fifteen of these 19 patients, or slightly more than 80 per cent, had good to excellent results, whereas in four the result was fair or poor. The clinical results in these patients are not so good as those in patients with achalasia of the esophagus.

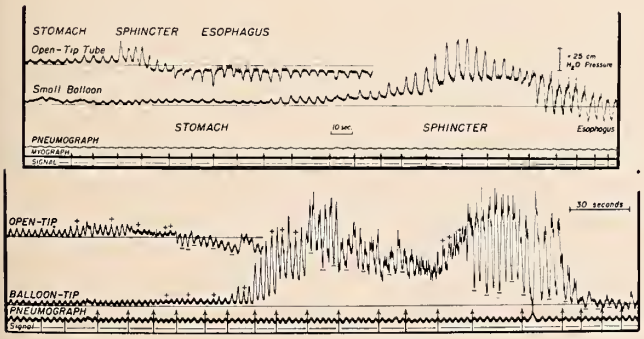


Fig. 5.

Pressure profile of gastroesophageal sphincter in health (above) and hypertensive gastroesophageal sphincter (below). (From Ellis, F. H., Jr., Code, C. F., and Olsen, A. M.: Long Esophagomyotomy for Diffuse Spasm of the Esophagus and Hypertensive Gastroesophageal Sphincter. Surgery. 48:155-159 (July) 1960.)

Postoperative motility tests have shown a decrease in pressure in the incised portion of the esophagus during swallowing in every patient tested, and this decrease remained permanent in those patients in whom repeated tests were made. In general, the amplitude, duration, and repetitiveness of the deglutitive responses observed preoperatively in the incised region were reduced, and this result was accompanied by the establishment of permanently simultaneous and rather feeble responses to swallowing. In the gastroesophageal sphincteric zone the maximal pressure detected in the sphincter at rest always was reduced by myotomy. The length of the sphincter also was reduced consistently.

The purpose of the operation performed in these patients is similar to that of the procedure used for esophageal achalasia. Although normal motility cannot be restored, an attempt is made to interrupt the abnormal pattern of motility. This has been accomplished by complete longitudinal division of the esophageal musculature in the diseased zone.

The fact that so many of these patients are nervous and highstrung must be borne in mind and the results of operation must be interpreted accordingly. All the same, at this clinic we have continued to use the procedure on properly selected patients, and our early guarded enthusiasm for the operation has been justified by the continuing good results in patients so treated.

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DOCTOR EDWARD A. ANNIS, PRESIDENT OF AMA TO VISIT ARIZONA

Don't forget the forthcoming visit of your AMA President, Doctor Edward A. Annis, next week. Doctor Annis will visit Arizona under the auspices of your State Association and the Maricopa and Pima County Medical Societies.

Doctor Annis' schedule includes appearances in the Phoenix area on Tuesday morning, October 22nd and Wednesday afternoon, October 23rd. Tuesday afternoon and Wednesday morning he will attend several functions in the Tucson area.

He will speak to groups sponsored by the Maricopa and Pima County Medical Societies, the Sun City Senior Citizens, Tucson Rotary, Woman's Auxiliary to the Maricopa County Medical Society, and Phoenix Kiwanis. Attendance is by invitation. For information contact members of these groups or Doctor Arthur V. Dudley, Jr. in Tucson and Doctor Wallace Reed in Phoenix.

Recent Trends In Identification And Sensitivity Testing of Acid Fast Organisms

by

H. Gilbert Crecelius, Ph.D.

Willard W. Dean, M.S.

In the past few years, a group of acid fast organisms have been isolated from the sputum of persons with chest lesions, but have not had the characteristics of M. TUBERCULOSIS.

They are now known as the "unclassified." These organisms are found more commonly in the Southeastern part of the U.S., but it is not unusual to find such acid fast bacilli in this area as the causative organism of a pulmonary lesion. This type of infection is often superimposed on other underlying conditions as bronchiectasis.

Since the "unclassified" mycobacteria are not contagious, it is not necessary to isolate the patient. Clinically, the lesions caused by "unclassified" bacilli do not respond as favorably to anti-TBC medication. In fact, lack of response of a chronic pulmonary lesion caused by an acid fast organism to adequate therapy sometimes leads the clinician to suspect presence of an "unclassified" organism. The ability of the laboratory to identify the various AFB is most helpful.

THE clinician and the laboratory have been confronted with many new problems in the diagnosis of tuberculosis. Development of drug resistance, changes in colonial morphology, variations of pigmentation and an ever increasing number of similar and related organisms necessitate advanced study and understanding by the bacteriologist. "Typical" as applied to acid fast organisms has lost its meaning, and new identification procedures must be used.

Biochemical Tests that aid in identification of the mycobacteria have gradually supplanted laboratory animals for this work. The best of these tests yet devised for the identification of *M. tuberculosis* is the niacin test of Konno (1956) as modified by Runyon (1959). The test is relatively inexpensive and easy to perform and readily demonstrates the production of niacin, a characteristic so far ascribed only to the human tubercle bacillus.

The catalase test as modified by Kubica and Pool (1960) is used to aid in the separation of *M. tuberculosis* from other organisms. *M. tuberculosis* and *M. bovis* cultures, placed in phosphate buffer at pH7 and heated to 68°C. for 20 minutes, will give negative catalase tests. (INH resistant human strains generally give a negative catalase test without heating). All other acid fast organisms are catalase positive before and after heat treatment.

The formation of cords in the growth pattern of certain acid fast organisms aids in their identification and adds helpful information regarding

Arizona State Department of Health
Division of Laboratories
Phoenix, Arizona

virulence of the bacilli. Virulent strains of tubercle bacilli tend to "orient themselves in close proximity to one another in the shape of serpentine cords." Under the microscope these cords are seen to be made up of individual bacilli lying side-by-side and end-to-end in parallel alignment. Occasional members of Group I, Photochromogens, may show a loosely woven cord growth pattern, but this cannot be mistaken for the true cord formation of virulent tubercle bacilli.

There is a large group of "soil" mycobacteria that has attained importance in the last few years. Originally, these organisms were called saprophytes. Their color varied from buff or pink to a bright canary yellow or orange. Following their identification and classification as definite entities capable of parasitism, they were called first the *Atypical*, then the *Anonymous*, and finally the *Unclassified*. Characteristics associated with these organisms have been pigment formation; resistance to PAS, INH, and Strep; low virulence; rate of growth; and the complete absence of any demonstrable communicability. Antigenicity in man may be demonstrated by skin testing with the appropriate PPD compound.

Runyon in 1959 proposed four groups.

Group I. PHOTOCHROMOGENS (Also referred to as M. *kanasii*)

These organisms are capable of developing color after exposure to light for one hour and reincubation in the dark for 24 hours. They have been reported more frequently in the north central and southwestern United States. Group I organisms have been considered etiological agents of disease when isolated repeatedly from clinical material.

Group II. SCOTOCHROMOGENS

This group of organisms is characterized by formation of highly pigmented colonies, pigment being produced in the absence as well as in the presence of light. They have not been found to be pathogenic.

Group III. NONPHOTOCHROMOGENS (Battey bacilli)

Originally isolated at Battey Memorial Hospital, these organisms are normally nonpigmented, and color is not altered by exposure to light. Slight pigmentations such as shades of tan or pink may be observed. Characteristically the non-photochromogens are found in the southeastern United States. Residents of some areas when tested with a PPD made from Group III organisms showed a 90% incidence of infection.

Group IV. RAPID GROWERS

Careful inspection of cultures after five days of incubation will reveal growth of certain organisms that may not be identified if left uninspected for the regular cultivation period of six weeks. This group, after the prolonged incubation can easily be mistaken for *Mycobacterium tuberculosis*.

Because of the incidence of the number of organisms showing drug resistance in tubercular infections, considerable attention has been given to methods to standardize the reporting of drug susceptibilities. One of the recent suggestions that is gaining in popularity in this country was originated by Selkon and Mitchison (1958). These British investigators advocated comparison of the test strain of *M. tuberculosis* with a standard strain, H37RV. For example, if *M. tuberculosis* H37RV was found sensitive to 1.25 micrograms of a drug and the patient's unknown strain was sensitive to 2.5 micrograms, a ratio of two would be reported. Later studies would reveal, by comparison, any increased resistance that might have developed. In addition, this would permit different laboratories, using slightly different techniques, to report similar or even identical results on the same patient.

ACKNOWLEDGMENT

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Drug Allergy

by
William B. Sherman, M.D.

An allergic response to drugs can complicate and confuse a therapeutic program. Since the most important part of the management of drug allergies is to stop the offending medication, early recognition is necessary. This paper describes the clinical manifestations of these allergies and should alert the physician to this unpleasant complication.

DRUG allergy is of special interest since it is encountered by physicians and surgeons doing all types of medical practice. The treatment of hay fever and asthma may be readily delegated to a limited number of internists, pediatricians and allergists, but the recognition of certain symptoms as manifestations of an allergic reaction to drugs is the responsibility of each practicing doctor. Some of these are the usual manifestations of allergic disease, such as anaphylactic shock, asthma, vasomotor rhinitis and contact dermatitis, but others are unusual syndromes which are rarely, if ever, noted as a result of allergy to other substances than drugs.

The recognition of such manifestations as allergic reactions is also made difficult by the potential toxic nature of most drugs. In asthma or hay fever the allergic patient is reacting to a substance which is completely harmless to nonsenitive individuals. Drugs, on the other hand, produce definite pharmacological actions, the intensity of which varies greatly in different individuals and in general are toxic if taken in sufficient quantities. Therefore the distinction between drug allergy and drug toxicity is not always easy.

Skin tests such as those which are important in determining the etiology of other allergic diseases are of limited value in diagnosis of drug allergy and in some cases are fraught with danger of severe reactions. Sensitizing antibodies which are typical of asthma and hay fever are only rarely demonstrable in cases of drug allergy.

Drug allergies are acquired sensitivities. Recognition of the allergic nature of a drug reaction may be helped by the observation that the patient does not react at first, but acquires sensitivity after use of the drug for a week or more and that after sensitivity is acquired, a relatively small dose may produce a prompt recurrence of the reaction. In this respect the allergic reactions differ from toxic reactions in which the total amount of the drug taken in a certain period of time is usually the determining factor in producing symptoms.

The number of new drugs recently introduced and the variety of allergic reactions which they

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may produce is so great that it would be foolish to attempt to enumerate the reactions produced by each individual drug.

Let us first consider some of the typically allergic reactions produced by drugs. The most striking and serious of these is anaphylactic shock. This comprises a generalized reaction of the skin, respiratory system and circulatory system which not infrequently proves fatal within a relatively short time. Such reactions are occasionally observed after oral administration of sulfonamides, penicillin and other drugs, but more often follow parenteral administration of drugs. Even thiamine, a normal and essential constituent of the body, may produce such reactions when injected parenterally in amounts greatly in excess of the normal requirements. By far the most common cause of such reactions in recent years has been penicillin. It may be noted that such reactions to penicillin are more frequent in otherwise allergic patients, particularly those who have bronchial asthma, and that severe reactions most often follow sporadic injections, rather than occurring in the midst of a continuous course of treatment. (The sensitivity is acquired through repeated use, and patients usually have one or more mild reactions before a severe or fatal one occurs.) In detecting susceptibility to such reactions skin tests are of some value. An immediate urticarial reaction to a scratch test with penicillin indicates a grave possibility of an immediate severe reaction. On the other hand, failure to elicit such a skin reaction does not eliminate the possibility of a marked anaphylactic reaction. In the case of penicillin, the most practical method of testing is a scratch test with the material which is actually intended to inject whether this be procaine penicillin or a soluble form of the drug. Even more important than the skin test is a careful history of possible previous reaction to the drug.

URTICARIA may be due to a wide variety of drugs, but by far the most common drug to cause them is penicillin. In contrast to the anaphylactic reactions, which usually occur within a few minutes after the injection of penicillin, urticarial reactions are characteristically delayed, and frequently first appear a week or more after the first dose of the drug. Most cases of urticaria due to penicillin subside spontaneously within a week or two, but certain cases persist for weeks or even months without further use of the drug. In such cases continued exposure to penicillin through dairy products or other obscure sources is often suspected. However, the use of penicillinase usually ends such reactions within a few days, indicating that they are actually due to traces of penicillin persisting in the body, long after it is impossible to detect a blood level by the ordinary tests.

ASTHMA may be due to a number of different drugs but here the most common and most serious offender is aspirin. Most patients having asthma due to aspirin are chronic asthmatics with many other etiologic factors, but the attacks produced by aspirin are particularly prompt and severe, usually occurring within a few minutes after taking the pill. In this situation attempts at skin tests are useless and dangerous. Scratch or intracutaneous tests with aspirin in susceptible patients may provoke violent attacks of asthma, without producing a positive local reaction. The diagnosis must be based primarily on the history. Such patients should be warned that practically all proprietary combinations for the relief of headache contain aspirin or closely related drugs and may be expected to produce similar reactions. The most practical measure is to prescribe a drug other than aspirin such as codeine or Darvon and recommend that it be used for headaches and muscular pains in preference to any preparation of which the composition is unknown.

One of the manifestations of drug allergy which has no parallel in allergy to naturally encountered substances is drug fever. This is produced most frequently by the sulfonamide drugs but many other drugs such as thiouracil and iodides, are occasionally the cause. The fever characteristically occurs abruptly at the end of the first week of treatment with the drug and persists as long as the use of the drug is continued. If the drug is stopped, the temperature usually returns to normal within a day or two but a subsequent dose of the drug produces a sharp spike in temperature within a few hours showing that sensitization has been aequired. Such fever may be accompanied by a maculo-papular dermatitis medicamentosa, leading to confusion with one of the exanthematus diseases. In the case of sulfonamides and other anti-infective drugs it is particularly important to recognize the fever as a reaction to the drug rather than an exacerbation of the original infection, so that the drug may be stopped promptly.

Recovery is usually prompt and complete if

the drug is discontinued, but such fever is a manifestation of serious generalized reaction which is apparent in pathologic studies of patients dying during the course of drug fever. Such patients show extensive lesions of the blood vessels of the heart, liver, kidneys and other organs. If the drug is continued this may progress to a type of arteritis which has often been confused with periarteritis nodosa.

DRUG allergy may be manifested by many different types of skin eruptions. Certain of these, such as the acneform rash produced by iodides and bromides and the fixed drug eruption produced by phenolphthalein, are characteristic of certain types of drugs. The two most common types of drug rash, dermatitis medicamentosa, a generalized maculo-papular rash following systematic medication, and contact dermatitis due to local application of an allergenic drug may each be produced by a wide variety of different agents.

While dermatitis medicamentosa characteristically follows ingestion of the drug and contact dermatitis topical application, both represent the same fundamental type of sensitization. If a patient has had contact dermatitis due to topical application of a sulfonamide ointment, subsequent oral use of the same drug will usually lead to a general reaction with dermatitis medicamentosa. Conversely if a patient has had dermatitis medicamentosa due to one of the drugs of this group, subsequent application of the same drug in a sufficiently soluble form to the skin surface will elicit a positive patch test.

Hepatitis due to drugs may present a difficult problem in distinguishing between toxic and allergic effects. Liver damage due to halogenated hydrocarbons, such as carbon tetrachloride and tetrachlorethylene, is generally considered to represent a toxic reaction. On the other hand, the obstructive type of jaundice seen after arsenic or chlorpromazine is apparently an allergic reaction. This form of hepatitis shows the features of acquired sensitization and may be accompanied by drug fever and drug rashes which betray the allergic nature of the reaction.

Blood dyscrasias due to drugs also present difficult problems in distinguishing between toxic and allergic reactions. Ackroyd has demonstrated clearly that the thrombocytopenic purpura following the ingestion of Sedormid is a typical sensitization in which platelets to which the Sedormid has become attached are agglutinated or lysed. A similar mechanism is probably involved in many cases of agranulocytosis and hemolyfic or aplastic anemias due to drugs, but the details of such reactions have been less clearly demonstrated.

Many other types of allergic reactions to drugs might be cited but these already mentioned illustrate the variety of manifestations of drug allergy.

The specificity of drug allergy varies so greatly in different cases that no definite statements can be made. Some patients will react to only one of the sulfonamide drugs whereas others present similar reactions to essentially all drugs of the group. While the different types of modified penicillins may produce slightly different incidents of reactions in the sensitive patient none can be safely used in the patient who has once had a severe anaphylactic reaction to any form of the drug.

The duration of drug sensitization once it has been acquired likewise varies but must be assumed to persist for many years. Desensitization through repeated small doses of the drug has been shown to be successful in the case of para-aminosalicylic acid and a few of the other antituberculosis drugs. With most other types of drugs attempts at this procedure usually result in failure and may produce serious reactions. When an alternative drug is available which will serve the same purpose equally well any attempt at desensitization is unwarranted.

TREATMENT of drug allergies is rarely necessary if the drug is promptly discontinued. In the case of persisting reactions, agents which eliminate the offending material from the body such as BAL for arsenic and penicillinase for penicillin are the most important measures. Symptomatic relief is generally afforded by the use of steroid drugs which can in general be used freely since the condition is self limited and the need will not persist for long.

In summary allergic reactions to drugs assume many different forms. Only a knowledge of the possible reactions to the drugs being used will help to make the diagnosis. Skin tests are rarely helpful and may be dangerous. When the diagnosis is promptly suspected and the use of the drug discontinued recovery is usually prompt. In view of the uncertainty of the specificity and possible duration of drug allergies it is safest to avoid the use of the same or closely related drugs for an indefinite period of time.

Original Articles

Antimetabolites And Antibiotics

Antimetabolitos y Antibioticos

by

Francisco Comesana Rendo, M.D.

The competitive antagonism of metabolites and antibiotics is briefly reviewed by a prominent Mexican investigator. The rationale for the use of pencillinase in the treatment of penicillin reactions is discussed. Three cases treated with pencillinase are briefly presented.

El antagonismo biologico entre metabolitos y antibioticos es revisado brevemente por un prominente investigador Mexicano. Se discute el uso racional de la penicilinasa en el tratamiento de reacciones causadas por penicilina. Se presentan brevemente tres casos tratados con la penicilinasa.

IN 1857 Pasteur said that for every type of fermentation a specific enzyme must be found, observing in 1860 that the penicillum glaucum fungus attacked the dextrorotatory form of tartaric acid, but on the other hand did not attack the levorotatory form. Pasteur concluded, "The character of asymmetry of organic compounds can modify chemical reactions of a physiological order. This is a phenomenon of great biological interest."

In the years 1888 and 1889 the publication of Bouchard appeared concerning the antagonistic actions produced by the pyocyaneus bacillus on certain bacteria. The "intermicrobic aversion" or, in other words, the biological antagonism between diverse microorganisms has been since then the object of many investigations.

The ideas of Pasteur in support of the biological theory of fermentation did not contradict the conclusive demonstration by Bucher that it was not the living organisms that brought it about

EN el año de 1857, Pasteur decía que para cada tipo de fermentación se debía encontrar un fermento específico, observando en el año 1860 que el hongo penicillum glaucum atacaba la forma dextrógira del ácido tartárico, pero en cambio no atacaba la forma levógira, concluyendo Pasteur: "El carácter de disimetría de los compuestos orgánicos puede modificar reacciones químicas de orden fisiológico". "Es éste un fenómeno de gran interés biológico".

En el año de 1880 y 1889 aparecieron las publicaciones de Bouchard (1) acerca de las acciones antagónicas producidas por el bacillus pyocyaneus sobre ciertas bacterias. La "aversión intermicrobiana" o sea el antagonismo biológico entre diversos micro-organismos, ha sido desde entonces objeto de múltiples investigaciones.

Las ideas de Pasteur en pro de la teoría biológica de la fermentación, no resistieron la demostración concluyente de Bucher de que no eran los seres vivos quienes la provocaban, sino los productos secretados por ellos, conocidos con los nombres de enzimas o zimasas; las enzimas son

but the secretions produced by them, known as enzymes or zymases. The enzymes are the true agents of fermentation and their action cannot be attributed to living protoplasm because the action of the enzymes contained in the protoplasm continues to manifest itself with the same activity after the cell is killed.

Investigators the world over are constantly concerned with enzymes or ferments. At the present time new enzymes are being discovered in different tissues, proving the immense power that they possess, and we are certain that through the study of the enzymes sensational discoveries will be arrived at and mysteries in the fields of biology and medicine will eventually be resolved.

D. W. Woolley, in his book, "A Study of Antimetabolites", the result of ten years' work, compiled a series of facts and experiments to demonstrate the increasing importance of the study of antagonistic activity. He presented, on one hand, those substances which play a decisive role in metabolic reactions which are ordinarily called "essential metabolites", or, more simply, "metabolites", amongst which are found vitamins, hormones, amino acids, and other natural substances essential to some phase in the process of life. On the other hand, other products which, in nearly every case, produce a biological effect upon increasing the concentration of the metabolite and having an analogous structure with an antagonistic action have been designated as "antimetabolites". When the metabolite in question is a vitamin the analogue has been designated "anti-vitamin"; when it is a purine, "anti-purine", etc.; and although the most precise name would be "antagonists with analogous structure to metabolites", the generic name of "antimetabolite" is that which is most generally used. The antimetabolite is a compound which tends to replace an essential metabolite, that is to say, it is a metabolic antagonist. The actual concepts concerning antimetabolites have been developed slowly with the acquisition of new knowledge in the chapters of biochemistry. These concepts have progressed thanks to studies of bacterial nutrition, of animal nutrition, of the composition and action of enzymes, and of the pharmacological study of the antagonism of the substances.

los verdaderos agentes de la fermentación y su acción no atribuírse al protoplasma vivo de las células, porque sometiendo el protoplasma celular a un tratamiento para producir su muerte, la acción de las enzimas contenida en el protoplasma sigue manifestándose con la misma actividad.

Día a día todo lo relacionado con enzimas o fermentos apasiona a los investigadores de todo el mundo; actualmente se descubren nuevas enzimas en los distintos tejidos, comprobándose el poder inmenso que ellos poseen y estamos seguros de que por el camino de los enzimas, se llegará a descubrimientos sensacionales y a resolver algunos de los misterios que en el campo de la biología y de la medicina tenemos planteados.

D. W. Woolley (2), en su libro "A study of antimetabolites", resultado de 10 años de trabajo, recoge una serie de hechos y de experimentos para demostrar la cada vez más creciente importancia del estudio de las acciones antagónicas, presentando por un lado aquellas substancias que juegan un papel decisivo en las reacciones metabólicas y que son llamados ordinariamente "metabolitos esenciales" o más simplemente "metabolitos", entre los que están las vitaminas, hormonas, aminoácidos u otras substancias de la naturaleza, necesarias en alguna fase del proceso de la vida y por otra parte, otros productos que casi en todos los casos producen un efecto biológico al aumentar la concentración del metabolito y que teniendo una estructura análoga y siendo su acción antagónica, han sida denominados con el nombre de antimetabolitos". Cuando el metabolito en cuestión es una vitamina, el análogo ha sido denominado anti-vitamina; cuando es una purina, anti-purina, etc. y aunque el nombre más preciso sería el de "antagónicos con analogía estructural a los metabolitos", el nombre genérica de antimetabolito es el que generalmente se usa más. El antimetabolito es un compuesto que tiende a reemplazar un metabolito esencial, es decir, es un antagonista metabólico. Los conceptos actuales sobre antimetabolitos se han desarrollado lentamente con la adquisición de nuevos conocimientos en los capítulos de la bioquímica; los conceptos han progresado gracias a los estudios de nutrición bacterial, de nutrición animal de la acción y composición de las enzimas y al estudio farmacológico del antagonismo de las substancias.

It is natural that finding ourselves in an era of antibiotics we begin to read communications where new substances that are antagonistic to antibiotics appear and which in some cases have the power of specific destruction of the antibiotic, as we will point out.

Es natural que encontrándonos en la era de los antibióticos, comencemos ya a leer comunicaciones donde van apareciendo nuevas substancias que son antagónicas de determinados antibióticos y que en algunos casos tienen un poder de destrucción específico y muy intenso contra el antibiótico, como veremos posteriormente.

The analogous or structural similarity between the antagonist or antimetabolic substance and the metabolite should be considered as a basic doctrine, according to Woolley. On the other hand, an antimetabolite should not be characterized only for its resemblance in the structural formula, but also in relation to its biological properties relative to its action in the processes of life in the presence of the metabolite.

La analogía o similitud estructural entre la sustancia antagónica o antimetabolito y el metabolito, deberá considerarse según Woolley, como una doctrina básica. Por otra parte, no se debe caracterizar a un antimetabolito solamente por su semejanza en la fórmula estructural, sino también en relación a las propiedades biológicas relacionadas con su acción en los procesos de la vida ante el metabolito.

IN the biochemical literature and based on studies of nutrition, several examples of unexpected and unexplained discoveries about the antagonism between certain vitamins, hormones, amino acids, and products similar to these in chemical structure, have appeared.

En la bibliografía bioquímica y sobre estudios de nutrición, aparecen desde 1920 a 1940 varios ejemplos de descubrimientos inesperados e inexplicados sobre el antagonismo entre ciertas vitaminas, hormonas y aminoácidos y productos semejantes a ellos en su estructura química. Uno de los primeros descubrimientos hecho en 1938 (3), indicó que la beta-acetil-piridina y el ácido piridina-3-sulfónico, producía toxicidad a los perros con deficiencia de ácido nicotinico, pero que eran inocuas cuando se administraba a los animales que recibian una dieta normal. Esta observación fué hecha durante una investigación con derivados de ácido nicotinico come substitutos de esta vitamina, y las propiedades más bien tóxicas que benéficas en estos dos productos análogos fueron inesperadas. Después del conocimiento del fenómeno de antimetabolito, estas dos substancias fueron estudiadas nuevamente en una variedad de elementos vivos y demonstraron ser anatagónicas al ácido nicotinico.

One of the first discoveries, made in 1938, indicated that betaacetylpyridine and pyridine-3-sulfonic acid poisoned dogs with a deficiency of nicotine acid, but that it was innocuous when administered to animals that received a normal diet. This observation was made during an investigation with derivatives of nicotine acid as substitutes for that vitamin, and the toxic properties in these two analogous products were unexpected. After learning of the phenomenon of antimetabolites, these two substances were studied anew in a variety of living elements and were demonstrated to be antagonistic to nicotinic acid.

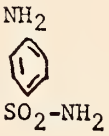
In 1938 Dyer, interested in the study of a derivative analogous to methionine, ethionine, as a substitute for this amino acid in the diet of rats, was surprised to find that when fed in place of methionine, ethionine produced toxic rather than beneficial effects. This toxicity was partially neutralized when methionine was administered with its analogue. It has been demonstrated that ethionine is an effective antimetabolite to methionine in various biological systems.

EN 1988 Dyer (4), interesada en el estudio de un derivado anál a la metionina, la etionina, como un substituto para este aminoácido en las dietas de ratas, se sorprendió al encontrar que cuando ella lo administraba en lugar de mentionina, provocaba efectos tóxicos más que benéficos. Esta toxicidad fué parcialmente neutralizada cuando la metionina se administraba con su análogo. Se ha demostrado que la etionina es un efectivo antimetabolito de la metionina en varios sistemas biológicos.

In 1940 we learned that the bacteriostatic action of sulfanilimide and sulfonamide drugs of similar structure was totally annulled by para-aminobenzoic acid. The mechanism of action of the sulfonamide drugs was explained by the production in the bacterial cells of a deficiency of the essential metabolite, para-aminobenzoic acid. Without this metabolite, the bacteria could not multiply.

THE chemical structures of para-aminobenzoic acid and sulfanilamide are very similar:





The reasons for the antagonisms are so diverse that they frequently remain without explanation and often provoke serious discussions among biochemists. The antagonisms between the sulfonamides and para-aminobenzoic acid can also be demonstrated in the biological synthesis of folic acid.

In the same manner, the antagonism between thiamine and pyrithiamine in enzymatic systems has been studied, as well as many other substances with corresponding antimetabolites.

Certain fungi produce an antibiotic agent containing chlorine which has proven useful in the treatment of infections produced by gram-negative bacteria and by rickettsia. This substance, known as chloramphenicol, has a structural formula analogous to phenylalanine although the similarity is somewhat remote, since four structural alterations are necessary to change the metabolite to the antibiotic. Although there have been many opinions in relation to this antimetabolite, the following factors can be pointed out: 1) Small doses of chloramphenicol can be efficiently antagonized by phenylalanine; 2) The effect is not proportional and it disappears completely when the concentration of chloramphenicol is increased.

En el año de 1940 (5) se comunicó que la acción bacteriostática de la sulfanilamida y drogas sulfonamídicas de estructura semejante, fué anulada completamente por el ácido paraminobenzoico. El mecanismo de acción de las drogas sulfonamídicas se explicó por la producción en las células bacteriales de una deficiencia del metabolito esencial, el ácido paraminobenzoico; sin este metabolito los gérmenes no pudieron multiplicarse. El ácido paraminobenzoico es muy activo por la sulfanilamida, pero además el antagonismo es proporcional.

Las estructuras químicas de sulfanilamida y ácido paraminobenzoico son muy semejantes:

Las causas de los antagonismos son tan diversas, que frecuentemente pueden quedar sin explicación y provocar serias discusiones entre los bioquímicos. El antagonismo entre las sulfonamidas, sus desivados y el ácido paraminobenzoico, puede demostrarse también en la síntesis biológica del ácido fólico.

De la misma forma se han estudiado las relaciones antagónicas entre la tiamina y la piritiamina en sistemas enzimáticos y muchas otras substancias con sus correspondientes antimetabolitos.

CIERTOS hongos producen un agente antibiótico conteniendo cloro, el cual ha resultado útil para el tratamiento de infecciones producidas por bacterias gram-negatives y por alguna rickettsia. Esta substancia conocida con el nombre de cloranfenicol tiene una fórmula estructural análoga a la fenilalanina aunque la similitud es algo remoto ya que son necesarias 4 alteraciones estructurales para pasar del metabolito al antibiótico. Aunque hubo muchas opiniones en relacion con este antimetabolito, se pueden señalar los siguientes factores: lo.-Pequeñas dosis de cloranfenicol pueden ser antagonizadas eficazmente por la fenilalanina. 20.—El efecto no es proporcianal y desaparece completamente cuando la concentración de cloranfenicol es aumentada.

And now we are going to discuss another antibiotic and a protein enzyme which is its antagonist. This antibiotic, which is the one which has been used in the greatest quantity for many years and which is considered the most important of all, is pencillin. In order to give you an idea of the enormous quantities of pencillin produced in the world, it is sufficient to point out that the annual production in the United States is 440 tons.

BUT before speaking of the protein enzyme antagonistic to penicillin, permit me some considerations in order to bring out the obligation that physicians have to defend. We must be alert and on constant guard to prevent these marvelous drugs that modern investigations provide us with daily from being used irresponsibly. There could be situations where penicillin, a life-saving product, could be transformed into a noxious and lethal substance. To give you an idea of the extraordinary diffusion that the use of penicillin can reach, we summarize briefly the following: Great groups of the population receive penicillin unknowingly through the intake of milk and products derived from milk as a consequence of the local treatment of mastitis in cows with penicillin. In some areas penicillin is added to milk in order to reduce the bacterial count in its analysis. Because of this, in the United States it has been recommended that milk containing antibiotics be considered adulterated. In mass inocluations of the Salk vaccine penicillin was administered to millions of children because this vaccine contains penicillin for its preservation. There are thousands of instances in which this antibiotic is prescribed *without being indicated.* An enormous amount of penicillin is self-prescribed in addition to its use therapeutically when correctly indicated. What was the consequence of this extraordinary diffusion in the employment of penicillin? That from day to day, in increasing proportions, cases of resistance to penicillin, with severe results, anaphylactic shock, etc., have produced a high percentage of deaths. The Antibiotic Symposium, which took place in Washington, D.C. in October, 1959, concluded: "The incidence of reactions

Y ahora vamos a tratar sobre otro antibiótico y una enzima proteíca que es su antagónico. Este antibiótico que es el que se ha usado más en cantidad, desde hace más tiempo y que es el más importante de todos, es la penicilina. Para darnos una idea de las enormes cantidades que se producen en el mundo de penicilina, basta señalar como dato estadístico el hecho de que la producción anual en un solo país, los Estados Unidos de Norteamérica, es de 440 toneladas.

PERO antes de hablar del enzima proteica antagónico de la penicilina, permítanme unas consideraciones para resaltar la obligación que tenemos los médicos de defender en beneficio de los efermos, las maravillosa drogas que día a día nos proporciona la investigación moderna; debemos de estar alertas y en guardia constante para evitar que esas drogas se usen irresponsablemente y que lleguemos por ésto a situaciones tales que productos como la penicilina que fueron y son salvavidas, en algunas circunstancias se transformen en substancias nocivas y mortales. Para darnos una idea de la extraordinaria difusión que alcanza el uso de la penicilina, recordemos someramente lo siguiente: grandes sectores de población reciben penicilina sin saberlo, por la ingestión de leche y de productos derivados de la leche, a consecuencia del tratamiento local de las mastitis de las vacas con penicilina; en algunos lugares añaden penicilina a la leche para disminuir recuento bacteriano en los análisis hasta el extremo de que en Estados Unidos se ha recomendado que la leche que tenga antibióticas se considere como adulterada; en las vacuanciones masivas con la vacuna Salk se administró penicilina a millones de niños porque esta vacuna contiene penicilina para su conservación; los miles y miles de casos en que se prescribe este antibiótico para tratar afecciones **en las que no tiene ninguna indicación,** la enorme cantidad de casos de auto-medicación con penicilina, el uso totalmente incorrecto de pomadas dermatológicas con penicilina, etc. etc. Y por último, el uso terapéutico cuando está correctamente indicado. Cuál fué la consecuencia de esa extraordinaria difusión en el empleo de la penicilina? Que día a día han empezado a surgir y está aumentando progresivamente major proporción de casos de resistencia a la penicilina y dentro de estos se están presentando

to penicillin in the last five years has increased from 4.8% to 9.6%, that is to say, that in the five years the percentage of reactions to this antibiotic doubled."

AS a result of the above mentioned facts, we consider that we must struggle tirelessly and with every method within our reach against self-medication and incorrect prescription of antibiotics; we must fight to maintain the use of this therapeutic aid exclusively for the physician, as well as to avoid the fatal reactions which are being provoked by its indiscriminate use.

It should be advised that one should not prescribe any antibiotic without having made a general diagnosis. We ought to investigate when possible the sensitivity of the causing germ to the given antibiotic in order to avoid the use of one that does not act against this specific organism, but that might sensitize the patient. Acting in this manner, perhaps we might avoid many future problems.

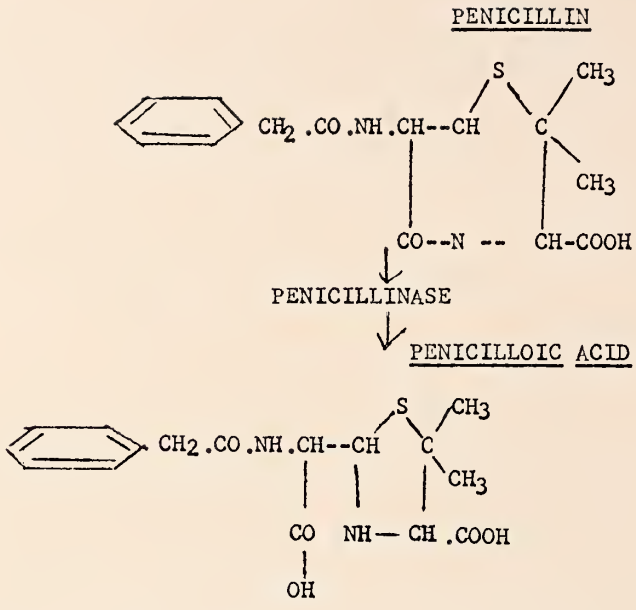
After these considerations which I consider indispensable, let us again return to the field of antagonistic drugs with the study of another enzyme discovered a relatively short time ago by Abraham and Chain in 1956. This protein enzyme, which specifically destroys penicillin, is penicillinase. Penicillinase is a protein enzyme secreted by Bacillus cereus, E. coli, and by many types of Staphylococcus (a little later we will discuss some new concepts in relation to the Staphylococcus.) This enzyme possesses a special affinity towards the molecule of penicillin and acts by breaking the betalactone ring of penicillin, transforming it by hydrolysis into penicilloic acid, which possesses neither antibiotic properties nor allergenic properties.

reacciones graves, shocks anafilácticos que ya están produciendo porcentajes de muertes. Un dato estadístico: El Simposium de Antibióticos celebrado en Washington en Octubre de 1959, concluye: "La incidencia de reacciones a la pencilina en los últimos 5 años, ha aumentado de 4.8% a 9.6%, es decir, que en 5 años se duplicó el porcentaje de reacciones a este antibiótico.

Por todo lo anterior, consideramos que debemos de luchas incansablemente y con todos los medios a nuestro alcance contra la automedicación y las prescripciones incorrectas de antibióticos, debemos luchar desde las cátedras, consultorios, organizaciones hospitalarias privadas u oficiales con todos los medios a nuestra disposición no solo para conseguir la defensa, para el médico exclusivamente, de estas armas terapéuticas sino también para evitar reacciones mortales que ya está provocando.

Debemos aconsejar no prescribir nunca un antibiótico sin antes en general hecho el díagnóstico; debemos de investigar siempre que sea posible la sensibilidad del germen causante al antibiótico determinado para evitar el uso de algo que no actúe sobre ese germen, pero que puede empezar a sensibilizar al enfermo . . . Actuando en este sentido nos evitaremos quizás en futuro muchos problemas.

Y después de estas consideraciones que he estimado obligadas, vamos de nuevo al campo de las drogas antagónicas con el estudio de otra enzima descubierto relativamente hace poco tiempo por Abraham y Chain en 1940 (6) y que ha podido ser purificado y preparado para uso parenteral en el año de 1956. Esta enzima proteíca que destruye específicamente a la pencilina, es la penicilinasa. La penicilinasa es una enzima proteica secretado por el bacillus cereus, el E. coli y por muchas razas de estafilococos (más adelante hablaremos sobre algunos conceptos nuevos en relación con el estafilococo). Esta enzima posee una afinidad especial hacia la molécula de la penicilina y actúa rompiendo el anillo beta-lactámico de la penicilina transformándola por hidrolisis en ácido peniciloico, el cual no posee ni propiedades antibióticas ni propiedades alergénicas .



The purified penicillinase for clinical use is obtained by the fermentation of cultures of the stock NRRL B-569 of Bacillus cereus. The unit of penicillinase is defined as the quantity of penicillinase necessary to inactivate, in vitro, a unit of penicillin in one minute at 25°C at a pH of 7.

La penicilinasa purificada para uso clínico se obtiene por la fermentación de cultivos de la cepa NRRL B-569 de bacillus cereus. La unidad de penicilinasa se define como la cantidad de penicilinasa necesaria para el desdoblamiento in vitro de una unidad de penicilina en 1 minuto a 25°C. y en un pH de 7.

PENICILLINASE has been well studied from the toxological point of view as well as the pharmacological, and we already have a great deal of clinical experience in its use for the treatment of reactions provoked by penicillin. It is considered as the specific substance for treating these reactions, since penicillinase immediately after being injected destroys the penicillin which exists in the different tissues of the organism.

La penicilinasa ha sido bien estudiada bajo el punto de vista tóxico y farmacológico y ya hoy tenemos mucha experiencia clínico en su uso para el tratamiento de las reacciones provocadas por la penicilina, considerándose bajo este punto de vista como la substancia específica para tratar estas reacciones, ya que la penicilinasa destruye después de inyectada toda la penicilina que existe en los distintos tejidos del organismo.

It is interesting to point out what occurs in relation to the Staphylococcus, and thanks to Chain a new idea in relation to Staphylococcus resistant to penicillin was developed.

"The true crucial part of the problem of Staphylococcus is the penicillinase and not the acquired tolerance of the mutant stocks, as had been supposed. The Staphylococci resistant to penicillin, which pose a dilemma to the doctor, are stocks which can and always could produce penicillinase; therefore, they can destroy the penicillin before it attacks them. In fact, in some of these organisms, the more they are exposed to

ES interesante señalar lo que sucede en relación con el estafilococo y se debe al premio Nobel Chain una nueva idea en relación con los estafilococos resistentes a la penicilina que anunciábamos anteriormente: "La verdadera parte crucial del problema del estafilococo es la penicilinasa y no la tolerancia adquirida de cepas mutantes, como muchos han supuesto. Los estafilococos resistentes a la penicilina que plantean un dilema al médico, son cepas que pueden — y que siempre han podido — producir penicilinasa, por lo tanto, pueden destruír la penicilina antes de que ésta los ataque. De hecho, en algunos de estos organismos, mientras

penicillin, the more penicillinase produced. Such Staphylococci are completely different from the organisms which acquire tolerance. Our studies in vitro showed that the mutants that become resistant to penicillin do so only temporarily. Once they are no longer attacked by the antibiotic, they again become the original stock sensitive to penicillin. I have not yet seen any of these organisms which have retained permanent resistance."

Finally let us observe graphically the intense and specific action that penicillinase possesses in the following cases:

más se les expone a la penicilina, más penicilinasa producen. Tales estafilococos son completamente diferentes de los organismos que adquieren tolerancia. Nuestros estudios in vitro mostraron que los mutantes que se vuelven resistentes a la penicilina lo hacen solo temporalmente. Una vez que dejan de ser atacados por el antibiótico, vuelven a su cepa original sensible a la penicilina. No he visto todavía uno de estos organismos que retenga resistencia permanante".

Y por último, veamos gráficamente la acción intensa y específica que posee la penicilinasa en los siguientes casos:

CASE No. 1

PATIENT: A.I. AGE: 18 mos. SEX: M. DIAGNOSIS: Acute penicillin reaction.

CLINICAL HISTORY: Received penicillin (150,000 units daily, intramuscularly) for nine days. Erythema, hives, and rash appeared on the eleventh day. Temperature, 103.6°F.; pulse 110.

TREATMENT: Immediate administration of penicillinase (800,000 U., intramuscularly) upon the appearance of the symptoms. The reaction receded within thirty hours. Temperature and pulse, normal. The child stopped scratching the lesions and stopped crying.

Caso No. 1.—PACIENTE: A. I. **Edad:** 18 meses. Sexo: M.

DIAGNOSTICO: Reacción penicilínica aguda.

HISTORIA CLINICA: Recibió penicilina (150,000 U. diarias, por vía intramuscular) durante 9 días. Eritema, angioedema y urticaria aparecieron al undécimo día. Temperatura: 40°; pulso, 110.

TRATAMIENTO: Administración precoz de penicilinasa (800,000 U. por vía intramuscular) al presentarse los síntomas. La reacción cedió dentro de 30 horas. Temperatura y pulso: Normales. El niño dejó de rascarse las lesiones y de llorar. La fotografía fué tomada 30 horas después de la inyección de penicilinasa.

CASE No. 2

PATIENT: P.S. Age: 6.5 yrs. SEX: F. DIAGNOSIS: Acute reaction to penicillin.

CLINICAL HISTORY: A maculopapular skin eruption which occurred after the use of penicillin and sulfas improved without any specific treatment. It then recurred with greater intensity followed by the formation of blisters, peeling of the skin, ulceration in the urinary system, and secondary dermal infection.

Caso No. 2.—PACIENTE: P.E. Edad: 6½ años. Sexo: F.

DIAGNOSTICO: Reacción penicilínica aguda.

HISTORIA CLINICA: La erupción cutánea maculopapulosa que se presentó después de la terapia con penicilina y sulfas mejoró sin ningún tratamiento específico, luego recurrió con mayor intensidad, seguida de la formación de ampollas, exfoliación, ulceración del sistema urinario, e infección dermal secundaria.

TREATMENT: Penicillinase (800,000 U., intramuscularly) administered the sixth and seventh day after the reaction began. A regimen was sustained similar to that used for extensive burns. An improvement was observed on the fifth day, followed by two weeks of gradual recuperation.

TRATAMIENTO: Penicillinasa (800,000 U. por vía intramuscular) administrando al sexto y séptimo día después del comienzo de la reacción. Régimen de sostén similar al de quemaduras extensas. Se observó mejoría al quinto día, seguida de recuperación gradual a la largo de 2 semanas. La fotografía fué tomada después de la primera inyección de penicilinasa.

CASE No. 3
PATIENT: R.G. AGE: 37 SEX: F. DIAGNOSIS: Delayed penicillin reaction.
CLINICAL HISTORY: A maculopapular skin cruption, diffuse and scaly, appeared ninety-six hours after having begun the use of penicillin (4,460,000 U.). Pruritus intense, erythema. She was treated for one month with antihistamines and steroids, during which time the skin eruption spread and became worse.

Caso No. 3.—PACIENTE: R. G. Edad: 37 años. Sexo: F.
DIAGNOSTICO: Reacción penicilínica retardada.
HISTORIA CLINICA: Una erupción cutánea maculopapulosa, difusa y descamativa, se presentó 96 horas después de haberse comenzado la terapia penicilínica (4,460.-000 U.). Prurito intenso, eritema. Fué tratada un mes con antihistaminas y esteroides, en cuyo tiempo la erupción cutánea se esparció y constantemente empeoró.

TREATMENT: Penicillinase (800,000 U.) cured the pruritis in twenty-four hours. The redness began to disappear within a week. Three additional dosages of penicillinase were administered, 800,000 U. each, during a period of two months.

TRATAMIENTO: Penicillinasa (800,000 U.) alivió el prurito en horas. El enrojecimiento comenzó a desaparecer al cabo de una semana. Administráronse 3 dosis adicionales de penicilinasa, 800,000 unidades cada una, durante un período de 2 meses. La fotografía fué tomada 19 días después de la primera inyección de penicilinasa, ilustra la desaparición de las lesiones.

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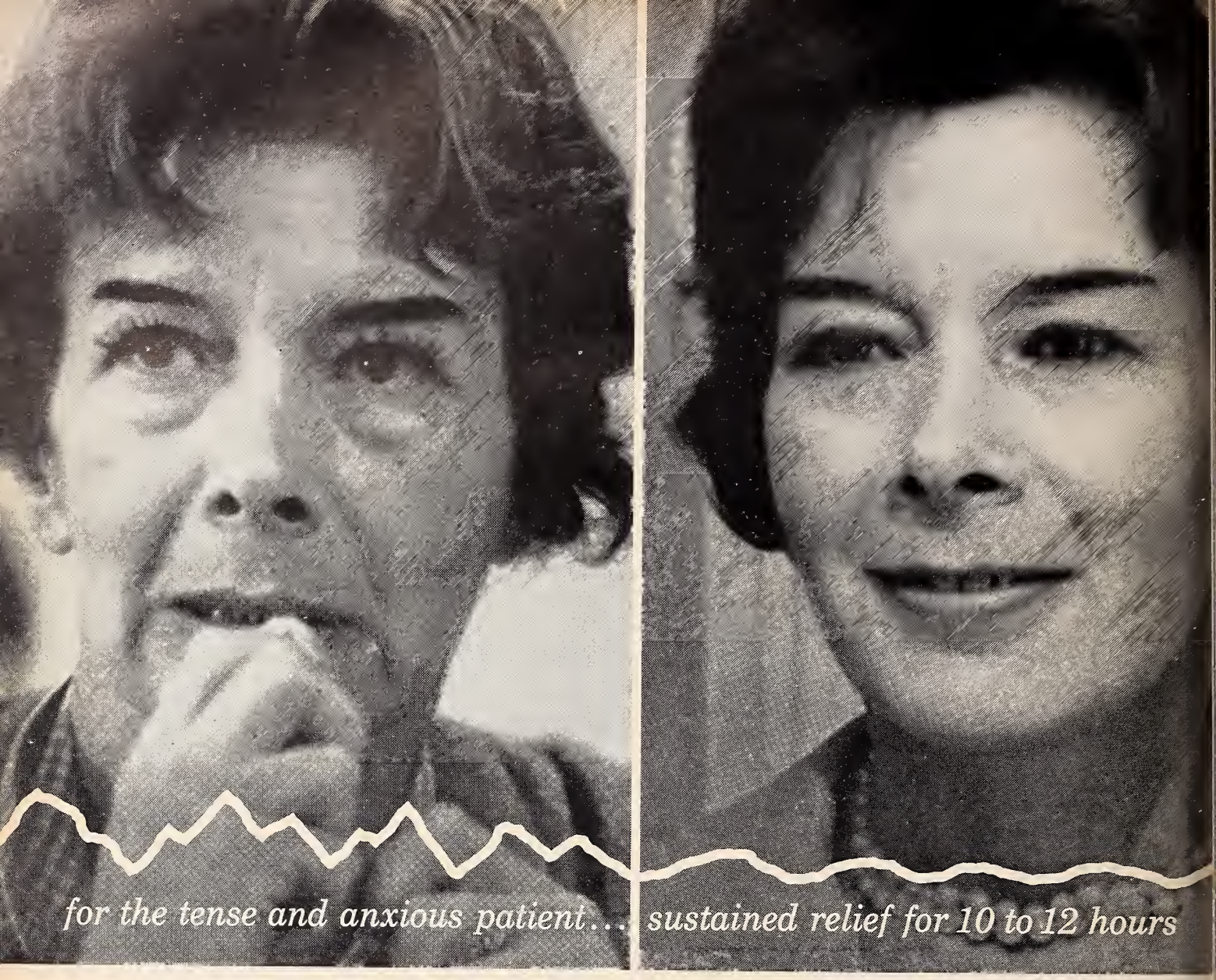
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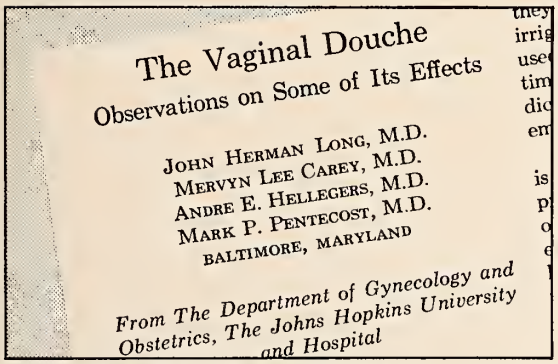
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The Vaginal Douche

Observations on Some of Its Effects

JOHN HERMAN LONG, M.D.
MERVYN LEE CAREY, M.D.
ANDRE E. HELLEGERS, M.D.
MARK P. PENTECOST, M.D.
BALTIMORE, MARYLAND

From The Department of Gynecology and Obstetrics, The Johns Hopkins University and Hospital

A SEARCH OF MEDICAL LITERATURE REVEALS NO COMPARABLE OBJECTIVE EVALUATION OF THE SUBJECT.

The authors state at the outset,

"Each physician has his own idea of the value or harm of the vaginal douche and many have expressed such ideas in writing. Such opinions have been arrived at without any intensive investigation or observation of subjects using douches as compared to those not using them. The purpose of this study is to report our observations on three groups of patients, one taking no douches, a second douching with a medicated solution* and a third douching with plain water."[1]

1. West. J. Surg., Obsts. & Gynec.: *71:*122-127, 1963

*The medicinal powder used in this study was META CINE®, a scientifically formulated preparation containing: papain, lactose, citric acid, methyl salicylate, eucalyptol, menthol and chlorothymol.

OBSERVATIONS BASED ON EXTENSIVE AND THOROUGH EXAMINATION SCHEDULE.

"One hundred patients were selected at random, regardless of their chief complaint, from the general population attending the Out-Patient Gynecology Clinic of The Johns Hopkins Hospital. Those selected were reexamined at 1, 3, 6, 9 and 12 months after the initial visit."

"At intervals patients were switched to the regimen of another group so that comparison of the effect of douching or not douching might be made in the same individual."

Three years were required to complete the study.

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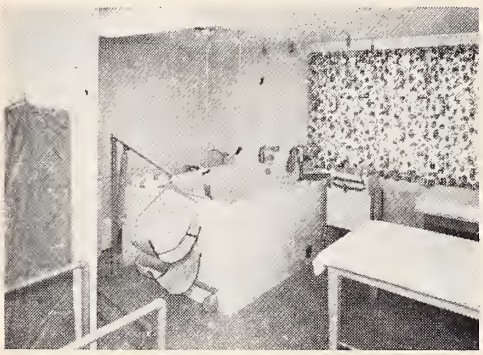
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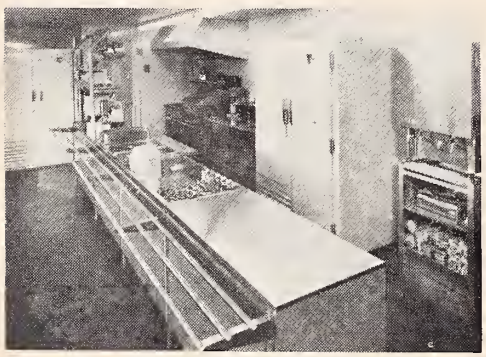
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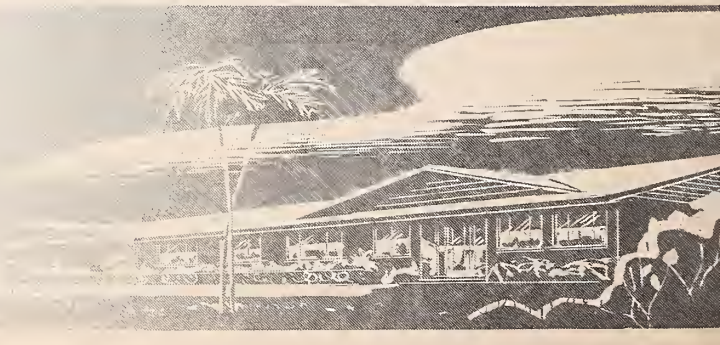
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Important news in cardiac therapy

Two new clinical reports document successful long-term treatment of ischemic heart disease with Persantin,® brand of dipyridamole

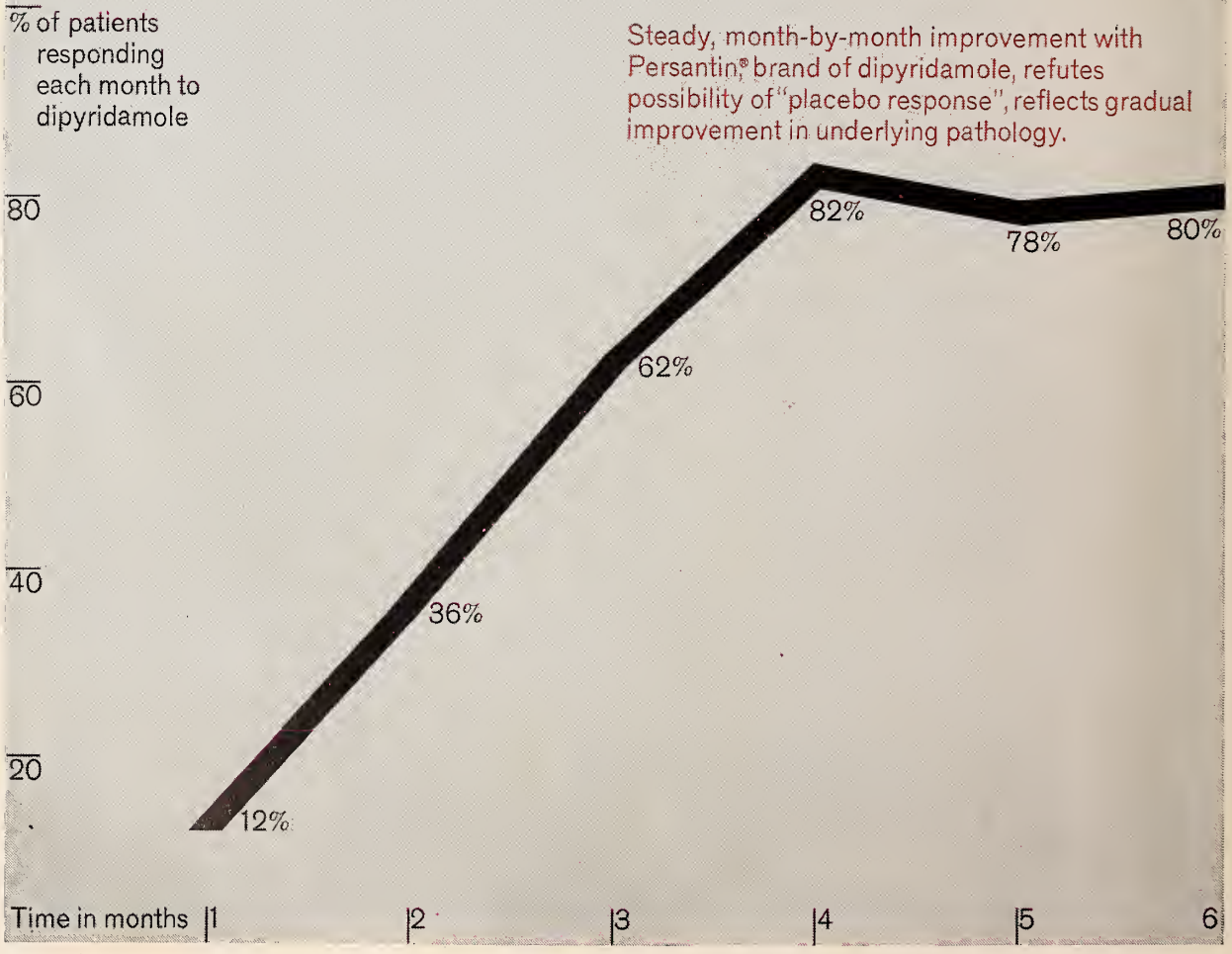
See next 3 pages

Study 1.
Griep,A.H.: Long-term Therapy of Ischemic Heart Disease With Oral Dipyridamole:
A Report of Fifty Cases. Angiology 14:484, 1963.

Persantin,® brand of dipyridamole, 25 mg. t.i.d. or q.i.d.,was administered continuously for 6 months to 50 patients with well authenticated ischemic heart disease with angina pectoris and ECG abnormalities. Results were evaluated on a monthly basis; final evaluation after 6 months showed that 56% of patients were completely free of, or had markedly fewer, anginal attacks, with normal or improved ECG findings; an additional 24% experienced fewer, milder attacks and improved work capacity.

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"...long-term oral therapy with dipyridamole was of benefit in 80 per cent of the patients... relief [of angina] came slowly and was usually maximal after three to six months of continuous treatment"



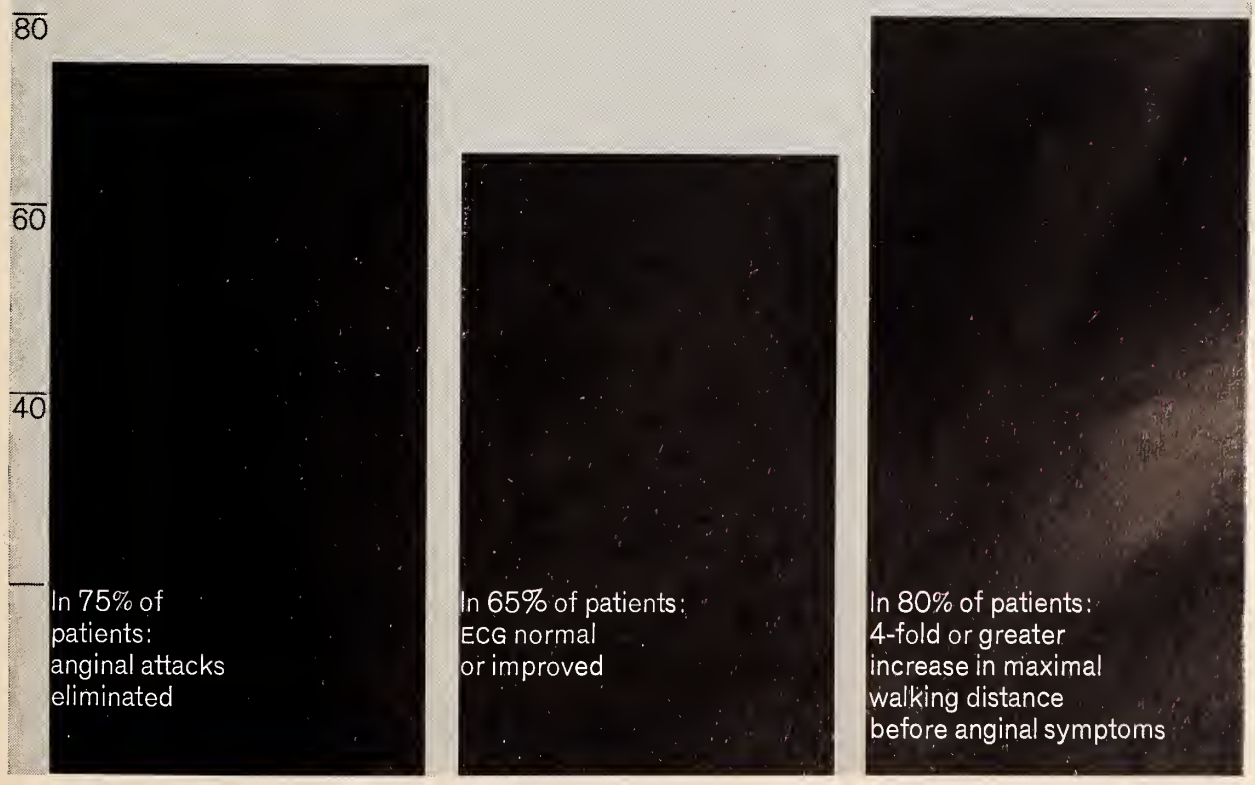
Study 2.
Wirecki,M.: Dipyridamole (Persantin®): Evaluation of Long-Term Therapy in Angina Pectoris. Current Therapeutic Research 5:472, 1963.

In 40 ambulatory patients with myocardial ischemia, angina pectoris, and abnormal ECG findings, Persantin,® brand of dipyridamole, 25 mg. t.i.d., was administered continuously for 3 months.

Results after 3 months of therapy revealed a satisfactory clinical response in 32 patients. The accompanying diagram illustrates the specific criteria of improvement in patients with excellent or good response.

Of 40 patients, 32 showed "...reduction or abolition of acute anginal attacks...complete or almost complete disappearance of ECG abnormalities... marked increase" in walking distance without anginal symptoms

Response after 3 months of continuous therapy with Persantin,® brand of dipyridamole



How Persantin,® brand of dipyridamole, provides long-term clinical benefits reported on previous pages

1. By increasing energy yield
of the hypoxic myocardial cell, by direct action upon the sarcosomes (heart mitochondria).[1-5]

2. By improving collateral coronary circulation.
Prolonged oral administration of dipyridamole to animals with experimentally induced stenosis of a major coronary artery resulted in superior development of collateral coronary anastomoses and longer survival compared with controls.[6-9]

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William B. Steen, M.D.

DR. ANNIS

October will be Dr. Annis' month in Arizona. Edward A. Annis, M.D., President of the American Medical Association, will visit Arizona under the auspices of the Arizona Medical Association, Maricopa County Medical Society and Pima County Medical Society, and will make a number of addresses on Tuesday, October 22, 1963 and Wednesday, October 23, 1963. He will have an opportunity to talk to varied groups of people, a cross section of Arizona, ranging from the senior citizen to the physician and his wife.

It is hoped that the doctors of the various counties of the state may have the opportunity to see or hear Dr. Annis during this visit to Arizona.

BLUE CROSS

Blue Cross is much in the news these days. 49 member hospitals of Blue Cross signed an agreement to defer a portion of their 1963 payments from the hospital plans which has already resulted in stabilizing the reserve fund of Blue Cross according to officers of Blue Cross. Blue Cross has the whole-hearted cooperation and support of the doctors of Arizona in this temporary situation.

BLUE SHIELD

Next, our Blue Shield plan has asked the state's 1,500 participating doctors to help the plan put its reserve fund back on a sound basis by accepting a 10% cut in the fees they collect from the Blue Shield. The cut was unanimously adopted by Blue Shield Directors and the organization's professional committee, going into effect September 1, 1963 and to continue over a 5 month period until January 31, 1963. I am sure the doctors of the state have accepted this temporary measure — a reduction in Blue Shield payments and will not pass the cost along to the patients. In this way, we can help to keep the reserve funds in a healthy condition.

Two ad hoc Committees of the State Association have been appointed. One, a committee for Appraisal of Arizona Blue Shield, chaired by Dr. Chesser, is busy studying the whole subject of Blue Shield. Another, a committee to study Orderly Realignment of Blue Shield to provide payment for all medical service of patients in Arizona, including pathology, radiology and anesthesia, is in its second year considering this phase of Blue Shield functions.

THESE are our plans. They represent one of our strongest bulwarks against the inroad of the Federal Government into the medical care of the American people. Prepaid health insurance is one of the corner stones. Our continuing support, cooperation, constructive criticism and willingness to make these plans work successfully are needed and I am sure will receive the undivided support of the Arizona doctor.

OPERATION HOMETOWN

The comments on this page would not be complete without some reference to HR 3920 and the activities of Operation Hometown. True, the bill has not come before the Ways and Means Committee for hearing. Likewise, a great deal of constructive effort has been put forth in the state to create a climate opposed to HR 3920 and to the government interference in the medical field. Furthermore, it has also been said that the administration will not do anything with HR 3920 at the present time, but will wait until next year and probably introduce a new bill.

I hear the words that we have wasted our time this summer. We should wait until later. This feeling is just what the administration wants. They would like to lull us into a feeling of false security and then strike when we are off our guard.

We must keep Operation Hometown a going concern. We must keep ourselves alert and active, create and keep a climate at home that will notify and convince our congressmen that the people back home are opposed to HR 3920 and to all government schemes to control the medical care of the people of the United States.

William B. Steen, M.D.

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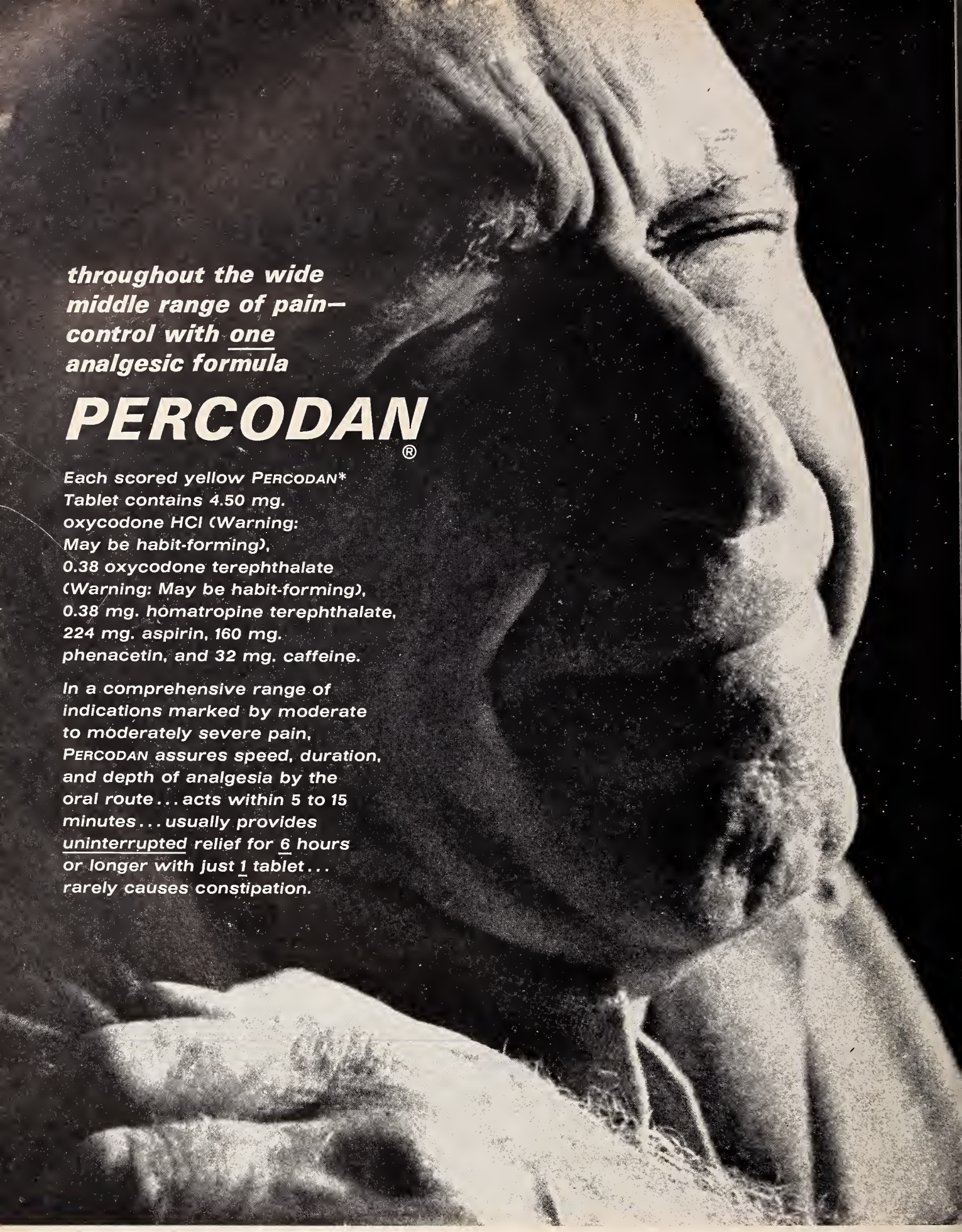
Each tablet of Trancogesic contains 100 mg. of chlormezanone and 300 mg. (5 grains) of aspirin. The usual adult dosage is 2 tablets of Trancogesic three or four times daily. Reactions to Trancogesic have been minor – gastric distress, and an occasional weakness, sedation or dizziness. Ordinarily, these may be reversed by a reduction in dosage or temporary withdrawal of the drug. Trancogesic is contrainindicated in persons known or suspected to have an idiosyncrasy to aspirin.

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Coffin Nails

We have all heard cigarettes described facetiously as "coffin nails". The question now is whether this definition is not more true than false.

The American Heart Association has joined The American Cancer Society and The Canadian Medical Society in campaigning against cigarettes, and the Royal College of Physicians has calculated that "the chance of dying in the next 10 years for a man aged 35 who is a heavy smoker is one in 23, whereas the risk for a non smoker is only one in 90". The California State Health Department has condemned cigarettes after a 15 year study. The federal government, with its penchant for regulation, is attempting to bring cigarettes under the F.D.A., and the Surgeon General's office is reviewing the question.

On the other hand, the Tobacco Institute continues to argue that no proof exists to implicate cigarettes in lung cancer and other diseases.

Should we Arizona physicians study the evidence and record an official position through our state association? It seems that if we ignore the question we may be shirking our responsibilities, not to the inveterate smoker who will follow neither example nor advice, but to the young person who is deciding whether to smoke.

Oscar Wilde said, "A cigarette is the perfect type of perfect pleasure. It is exquisite and it leaves me unsatisfied." However, if cigarettes are truly "coffin nails", smokers might well heed Thackary who said, "The pipe draws wisdom from the lips of the philosopher, and shuts up the mouths of the foolish."

Following a thorough study, we believe that the Arizona Medical Association should join the eight other state associations who have expressed an official opinion on the effect of cigarette smoking on health.

Robert F. Lorenzen, M.D.
Editor

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Material submitted for publication in ARIZONA MEDICINE should conform to the following policies:

1. Manuscripts, including references or bibliography, should be typewritten, double-spaced, on one side of the paper only, and the original and a carbon enclosed.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Although the Editors try to catch inaccuracies, the ultimate responsibility is the author's.
4. Articles are accepted for publication only if they are contributed exclusively to this Journal. Ordinarily, contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
5. The Journal reserves the right to edit all material.
6. Reprints will be supplied to the author at printing cost.

Editorials of Arizona Medicine are the opinions of the authors and do not necessarily represent the official stand of The Arizona Medical Association, Inc. The opinions of the Board of Directors may be sought in the published proceedings of that body.

To Tell The Truth

There is an aspect of noblesse oblige to which, without preaching, I should draw your most serious attention. It is the duty of the professional man and the executive to make it easier for others to tell the truth.

An appalling characteristic of the mentally ill is the fact that they were denied an opportunity to be truthful — first to us and then to themselves. The mental mechanisms, by which psychiatric disorders are identifiable, are always devices of desperate deceit. This is why the mentally ill are still so hard to understand and so unfairly stigmatized.

Observe the spirit of this young man, rain-drenched in the forest of schizophrenia. He was of gentle mind and internally rather feminine. Every day of his life he was tortured for what he was, not for what he did. Father's scorn was a leather whip. Mother told him: "Better that a son of mine had not been born than to have turned out to be a queer." Older brother was sicced on to tease him and hurt him, "to see whether he would stand up and fight like a man." At church he was warned that he must love these persons or be damned.

So he is damned. His spirit has been evulsed from an intolerable habitation.

His tongue says, "I think the nurses are trying to poison me." It is a delusion. It is also a gross untruth.

Believe me, before he could utter such a lie, we had forced him to recite a long rosary of lesser dishonesties. As always, his false confessions were wrung by the thumbscrews. His honesty, his simple wish to be himself, was broken on the wheel.

Over here is the soul of a young woman. At sixteen she became physically aware of a bull-necked dullard on a neighboring farm. She had been taught that her feelings were either sinful or a sign from Providence that she should marry him. After the birth of their first child he became abusive. When he was drinking he subjected her to unspeakable indignities. He even puked on her.

Her body is in the hospital, paralyzed on one side. By our scientific standards, the paralysis is completely false. The nurses scarcely conceal their derision. The doctor has explained to the waiting husband that the illness is imaginary, is just her way of getting attention.

Earlier, in refusing to grant her a divorce, a black-robed judge made for publication a wise remark: "Wives, like salad dressings, should be beaten before they get spoiled."

The spirit of tihs young woman beseeches us to let her tell the truth. She has endured the whiffs of ether, the painful electric shocks, the abjurations of the physician. But her husband has notified the business office that he will no longer pay her hospital costs.

Here is an awkward adolescent. Neither of her parents was considered fit to have her custody. She is placed in a foster home where I attended a recent party. Called back from her rest to clean up the dishes, she was admonished not to pout; and her mistress publicly reminded her to feel grateful or go back to the institution.

She is overweight. She gorges herself for an uncertain tomorrow. And she is forever insulating a mute and hopeless longing to be beloved. She says she doesn't care.

At the ranch where I ate supper tonight they have a touching ceremony. While saying grace they join hands around the table. It is a contact, both physical and metaphysical. It is a true communion.

And now by my campfire the red-eyed vigilance of the horse signals the uneasy approach of the witches. They are drawn to the warmth but remember their burning.

They are exiles from the city of truth. They had to adopt their conversions and symbolizations and projections to ward off our blows. They were driven into dishonetsy — and this is their pact with the devil.



William B. McGrath, M.D.

Assistant Editor

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Practically standard treatment, now, for bleeding ulcer. Why is Maalox included? Antacid therapy *must* continue long after the wound has healed, and patients started on Maalox tend to stay on Maalox. It tastes good; it's effective and will not cause constipation—three important reasons for Maalox over the long haul. Some physicians, we are told, order Maalox routinely for hospital patients on drugs which could irritate. They feel it reduces the likelihood of gastric discomfort. Supplied: Suspension; Tablets No. 1; Tablets No. 2. (Each Maalox No. 1 Tablet is equivalent to 1 teaspoonful and each Maalox No. 2 Tablet is equivalent to 2 teaspoonfuls of Suspension.)



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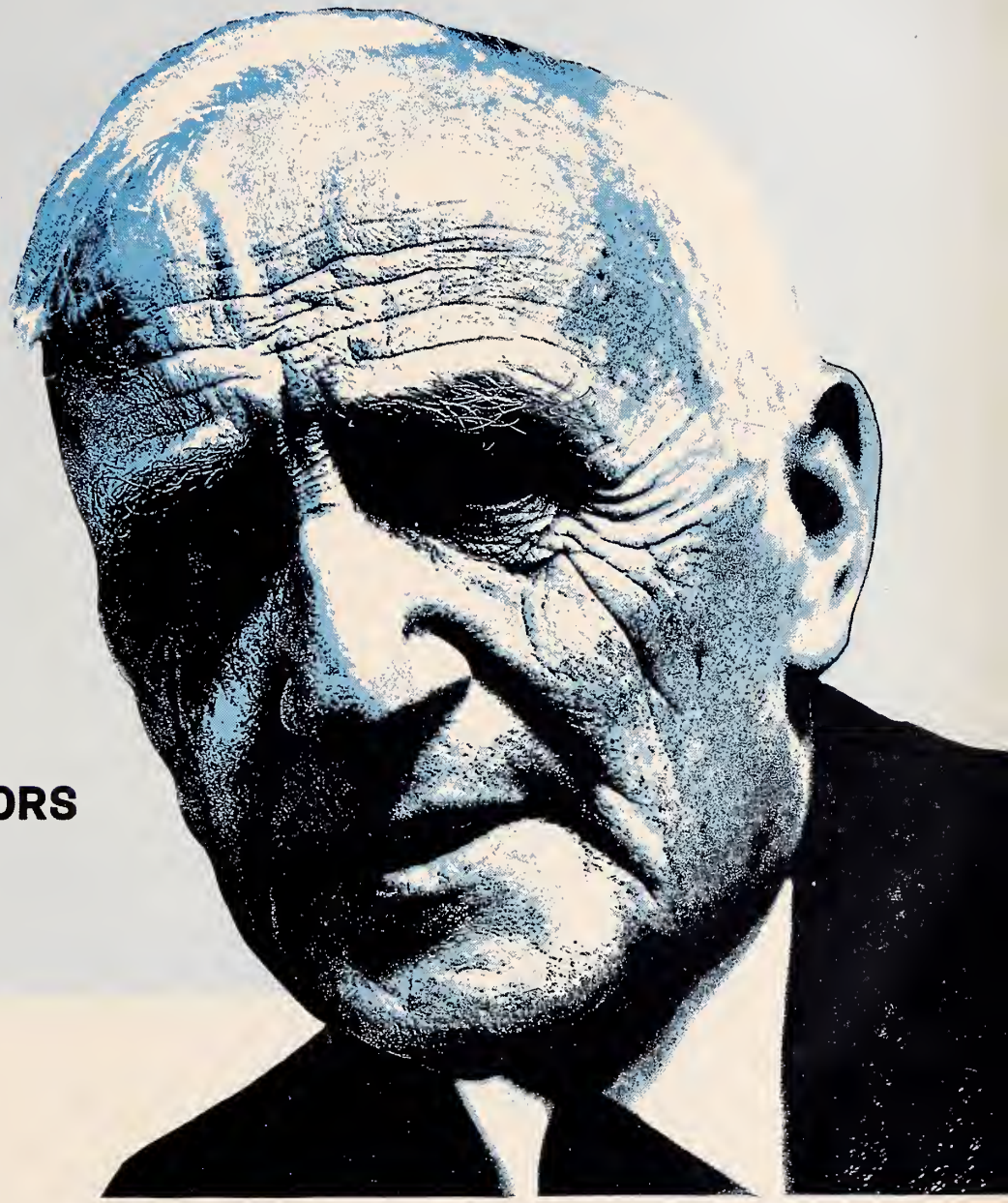
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1. Ford, R. A., and Blanchard, K. P.: J.-Lancet 78:185, 1958.

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Topics of Current Medical Interest

Recipients Named For W. B. Saunders Company Writing Fellowship Award

The extensive and enthusiastic response to the announcement of the Saunders 75th Anniversary Writing Fellowship has resulted in the awarding of two grants instead of the previously announced single award.

So many outstanding applications were received by the Selection Board from medical scientists of distinguished accomplishment, that an Executive Committee consisting of Robert F. Loeb, Rene J. Dubos, Henry Allen Moe, and Robert S. Morison recommended to the Saunders Company that it mark its anniversary with two equal fellowships, each in the amount of $15,000.

Saunders accepted this recommendation and announces that the two recipients chosen by the eminent selection board are Dr. Herman M. Kalckar, of Harvard Medical School, and Dr. Paul B. Beeson, of Yale University School of Medicine.

Dr. Kalckar will be writing on Biological Patterns of Cells in Developmental Defects and Disease States.

Dr. Beeson will be writing on Associations of Specific Infections with Certain Disease States of Man.

Formal presentation of the awards will be made individually to each grantee at two dinners to be held in the Fall and Early Winter.



The following physicians, from left to right, members of the Arizona Medical Association, attended two weeks summer training at Letterman General Hospital, The Presidio, San Francisco, this summer. They are all members of the 6251 U.S. Army Hospital (750-bed) (AUG) Headquarters, Phoenix, Arizona.

Col. John W. Kennedy, Lt. Col. Samuel L. Cohen, Lt. Col Bernard F. Frazen, Capt. James D. Bullington, Lt. Col. Garland Wood, Lt. Sterling J. Ryerson. Dr. Ryerson is a resident at St. Joseph's Hospital, Phoenix, Arizona.

John W. Kennedy commands the unit.

Topics of Current Medical Interest

APPLICATION ACTIVITY OF APPLICANTS TO THE CLASS OF 1962-63

The number of applicants accepted for enrollment in U. S. medical schools increased in 1962-63. This continues the trend of previous years for existing schools to expand their enrollments. A total of 8,959 students were accepted, an increase of 277 or 3.2 per cent over last year (see Table 1). This year's increase is due, in part, to the addition to the roster of U. S. medical schools of the California College of Medicine. This school accepted 94 students for its freshman class of 1962-63.

TABLE 1
Summary of Application Activity During the Past 16 Years
Applications to Medical Schools

1st Year Class	Applicants	Total	Per individual	Accepted applicants
1947-48	18,829	56,279	3.0	6,512
1948-49	24,242	81,662	3.4	6,973
1949-50	24,434	88,244	3.6	7,150
1950-51	22,279	81,931	3.7	7,254
1951-52	19,920	70,678	3.5	7,663
1952-53	16,763	56,319	3.4	7,778
1953-54	14,678	48,586	3.3	7,756
1954-55	14,538	47,568	3.3	7,878
1955-56	14,937	54,161	3.6	7,969
1956-57	15,917	59,798	3.8	8,263
1957-58	15,791	60,951	3.9	8,302
1958-59	15,170	59,102	3.9	8,366
1959-60	14,952	57,888	3.9	8,512
1960-61	14,397	54,662	3.8	8,560
1961-62	14,381	53,834	3.7	8,682
1962-63	15,847	59,054	3.7	8,959

Most noteworthy is the increase in the total number of applicants in 1962-63 of 1,466 or 10.2 per cent over 1961-62, the first such increase since 1956-57. At the same time, college enrollments have increased signicantly.

Submitted by the Division of Education of AAMC, 2530 Ridge Avenue, Evanston, Illinois.

COMMUNITY HEALTH WEEK

To attract public attention to the excellent medical and health facilities existing in all communities, state and county medical societies all over the country are being urged to observe Community Health Week, October 20-26, 1963.

This will be the first national observance of what is intended to be an annual event. The House of Delegates of the American Medical Association, at its meeting in Los Angeles in November, 1962, adopted a resolution establishing the nation-wide observance of Community Health Week on a continuing annual basis.

In a letter to executive secretaries of state and county medical societies, Edward A. Annis, M.D., president of the AMA, wrote: "The objective of this national program is to focus public attention, at the community level, on the progress of medical science and the high quality of each community's health resources and facilities."

The manner of observance of Community Health Week will be left to the discretion of each state and county medical society. Health fairs, science fairs, medical careers days and immunization campaigns have been suggested as focal events around which the community observances may be organized.

"The success of this program will depend largely on the effectiveness of imaginative planning, enthusiasm and hard work on the part of state and county public relations committees," said Dr. Annis.

AMA will mail a selection of publicity aids and suggestions that can be adapted to promote Community Health Week to executive secretaries of state and county medical societies.

The average cost for each day a patient spends in the hospital has more than doubled in the last ten years, increasing from $18.35 to $36.83 a day, the American Hospital Association recently disclosed.

The total expense of an average stay in the hospital — slightly more than a week — increased during the same period from $148 to $279, the association revealed.



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APPROVED BY THE JOINT COMMISSION ON ACCREDITATION OF HOSPITALS; and THE AMERICAN PSYCHIATRIC ASSOCIATIO

August 10, 1963

Dear Dr. Neubauer:

I have waited until vacation —a catching-up time — to thank you for sending me the May issue of *Arizona Medicine* with the article on Mexican-American Medical Beliefs by William Holland. It was extremely interesting to me and will be useful in my folklore class at the University.

I am wondering whether it has had any interesting comeback either in writing or in conversation with other doctors. It seems to me every doctor must run in to interesting folk medical beliefs and customs that we would long to have in our University of Arizona Folklore Archive. Why don't you start a department in the magazine on folk medicine with correspondence from your readers? It would make a nice reader contact device, and would have great value for its own sake, not only folklorically as a study of Arizona traditional practices, but maybe also medically. As you know much better than I, the College of Pharmacy in connection with the American Cancer Society (isn't it?) is making a study of folk remedies hunting possible valuable clues. We got out a questionnaire for the schools in connection with the mimeographed material we occasionally distribute in our collecting efforts asking for information on the uses of herbs, animal products, etc. for medicinal purposes. We got a little response — not much — and of course with the deficiencies of any collection by children. But think what the medical profession could do!

Thank you again for your kindness in sending me the article.

Sincerely yours,
Frances Gillmor
Chairman, Folklore Committee.
Department of English
University of Arizona

July 26, 1963

Dear Dr. Lorenzen:

"Men sometimes think by fits and starts, and all too often without firm ideas. . . . ," but this doesn't keep them from writing editorials such as "Closed Chest," which appeared in the April issue of *Arizona Medicine*. In this, it is stated that, " . . . when our state heart association starts thinking about a big program to teach the techniques to the layman, it is time we stripped it of its glitter and public appeal and took a hard look."

Dr. Harold J. Rowe, President of the Arizona Heart Association, has pointed out the fact that a program of teaching resuscitative techniques has never been considered by the Arizona Heart Association. His letter has been published under "Correspondence" in the June issue of *Arizona Medicine*. On the same page there appears a letter from Dr. Arthur R. Nelson, a co-author of the original editorial. The letter states, "Please be advised, and so advise Dr. Rowe, that the problem of closed chest massage as a project for lay teaching originated at the county level in the Maricopa County Heart Association, where the enthusiasm for lay teaching of this technique was quite vigorous at the time the original editorial was written . . . "

It is regrettable that the authors of the editorial never checked their information. It is true that a committee of the Maricopa Heart Association has been exploring the possibilities of teaching the techniques of cardio-pulmonary resuscitation to physicians and paramedical personnel who might reasonably be expected to have need for such training. However, it is not, and never has been the intent of the Maricopa Heart Association to extend such instruction to laymen. It is possible that in the future, exception will be made in the case of police, firemen, linemen, and similar specific groups, but this is not included in present plans.

Correspondence

Though it is unlikely that the authors of the editorial so intended it, the reader may gain the impression that closed chest cardiac resuscitation (CCCR) is of questionable value, even in the hands of trained personnel. Several points, therefore, deserve comment:

1. "Under the best circumstances, with an open chest, in an operating room, with a trained team of surgeons, the heart exposed, all the necessary armamentarium available . . . cardiac arrest is only about fifty per cent recoverable." — etc. With due respect to surgeons, without whom CCCR would never have been developed, cardiac arrest is now potentially recoverable outside the O.R., even in the absence of a surgeon.
2. "But how many lay situations of ventricular fibrillation are ever going to get to a defibrillator?" Exactly none — if personnel trained in CCCR are not available. And this is not limited to "lay situations."
3. "Closed chest massage has produced a great host of fractured ribs, . . . " etc. This is not unique in medicine; digitalis is dangerous, too. We should prefer that whoever uses either of these will be well trained.
4. "It seems that the unemotional logistics of the matter deserve some unemotional thinkink." Agreed! The American Heart Association has been doing just this for some time, as evidenced by the editorial on CCCR in the September 1962 issue of Circulation.

Sincerely yours,
David R. Long, M.D.
Past President
Maricopa Heart Association
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In patients with impaired cardiac and renal function, there is the possibility of sodium and water retention. Liver function tests may reveal an increase in bromsulphalein retention, particularly in elderly patients. In such cases, therapy should be discontinued. Although it has been used in patients with cancer of the prostate, its mild androgenic activity is considered by some investigators to be a contraindication.

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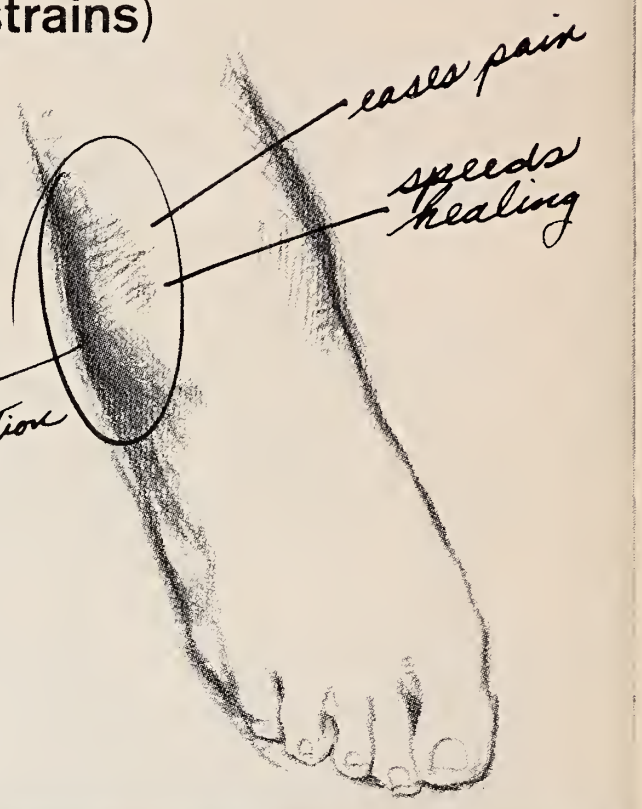
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References: 1. Lichtman, A. L.: Delaware M. J. **33**:11, 1961. 2. Lichtman, A. L.: Ann. New York Acad. Sc. **68**:196, 1957. 3. Golden, H. T.: Clin. Med. **2**:583, 1955. P-2384/63 7/63

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Edward M. Hayden, M.D.

1900-1963

On August 5 Doctor Edward M. Hayden, a pioneer in Arizona Radiology, died at the age of 62.

Doctor Hayden, a native of Eau Claire, Wisconsin, graduated from the University of Minnesota Medical School in 1925 and did post-graduate work in diagnostic X-ray at the Mayo Clinic in Rochester, Minnesota, at Presbyterian Hospital in New York City, and at Stanford University in California. He came to Arizona in 1928 to practice at the Desert Sanitarium in Tucson. This later became the Tucson Medical Center. Doctor Hayden entered private practice in 1933 and expanded his activities with the association of others until in 1946 he was joined by Doctor Arthur Present, with whom his association continued until his death, with the addition of several other Radiologists over the years.

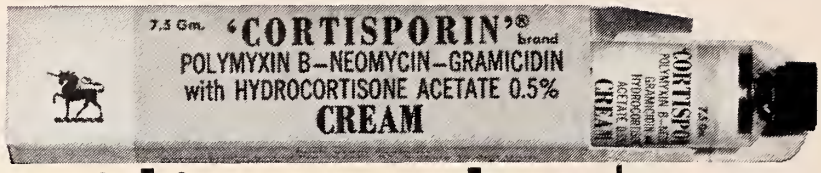
Doctor Hayden was a member of the staff of all Tucson Hospitals and for many years was closely affiliated with St. Mary's Hospital. He was President of the Pima County Medical Society in 1944 and of the Arizona Medical Association in 1953. He was a member of the American College of Radiology, The Radiological Society of North America, Rocky Mountain Radiological Society, and the Southwest Medical Association.

A simple enumeration of Doctor Hayden's associations and offices can scarcely measure his contribution to Radiology, to medicine, and to his community. His advice and counsel, his kindness and clear thinking, and his encouragement of young men interested in Radiology stand as tributes to this fine man. Doctor Hayden's physical handicaps never were a barrier to his desire to serve others.

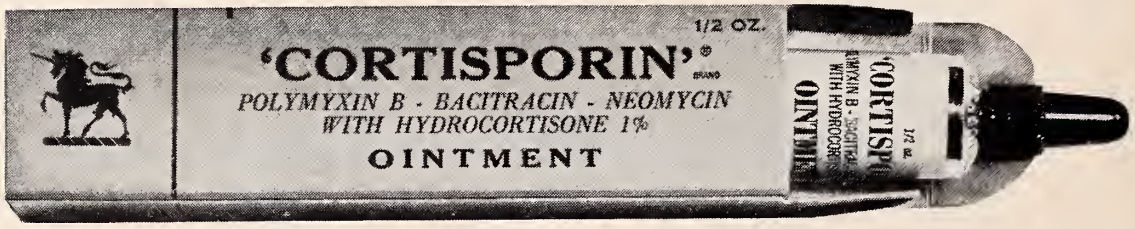
He is survived by his widow, Ermalyn B. Hayden.

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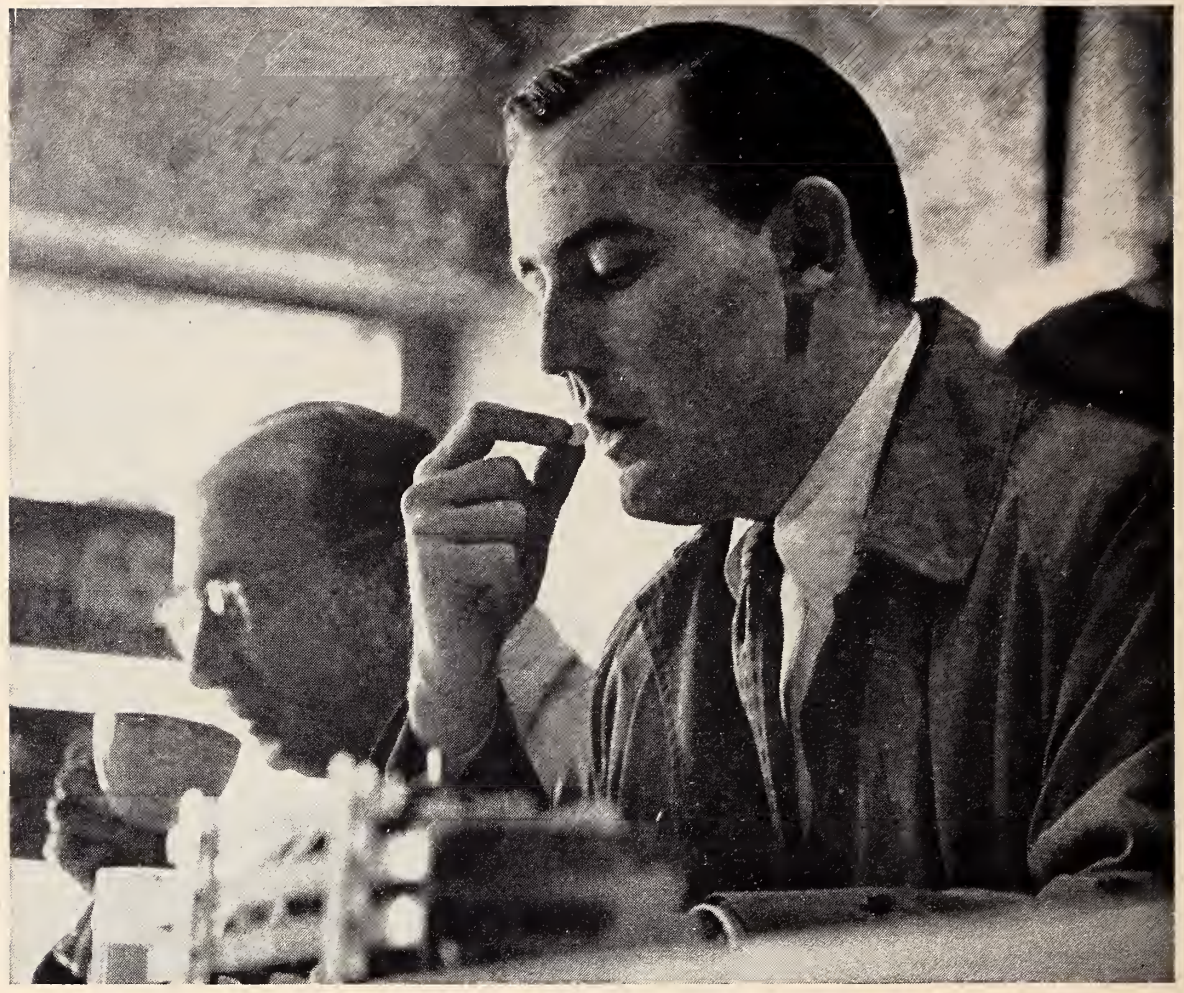
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*Schwartz, I. R.:
Current Therap. Res. 3:29, Feb., 1961.

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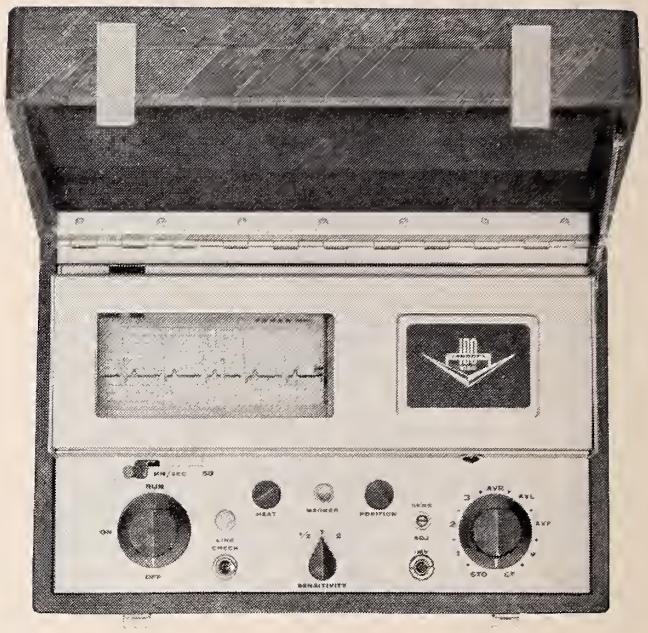
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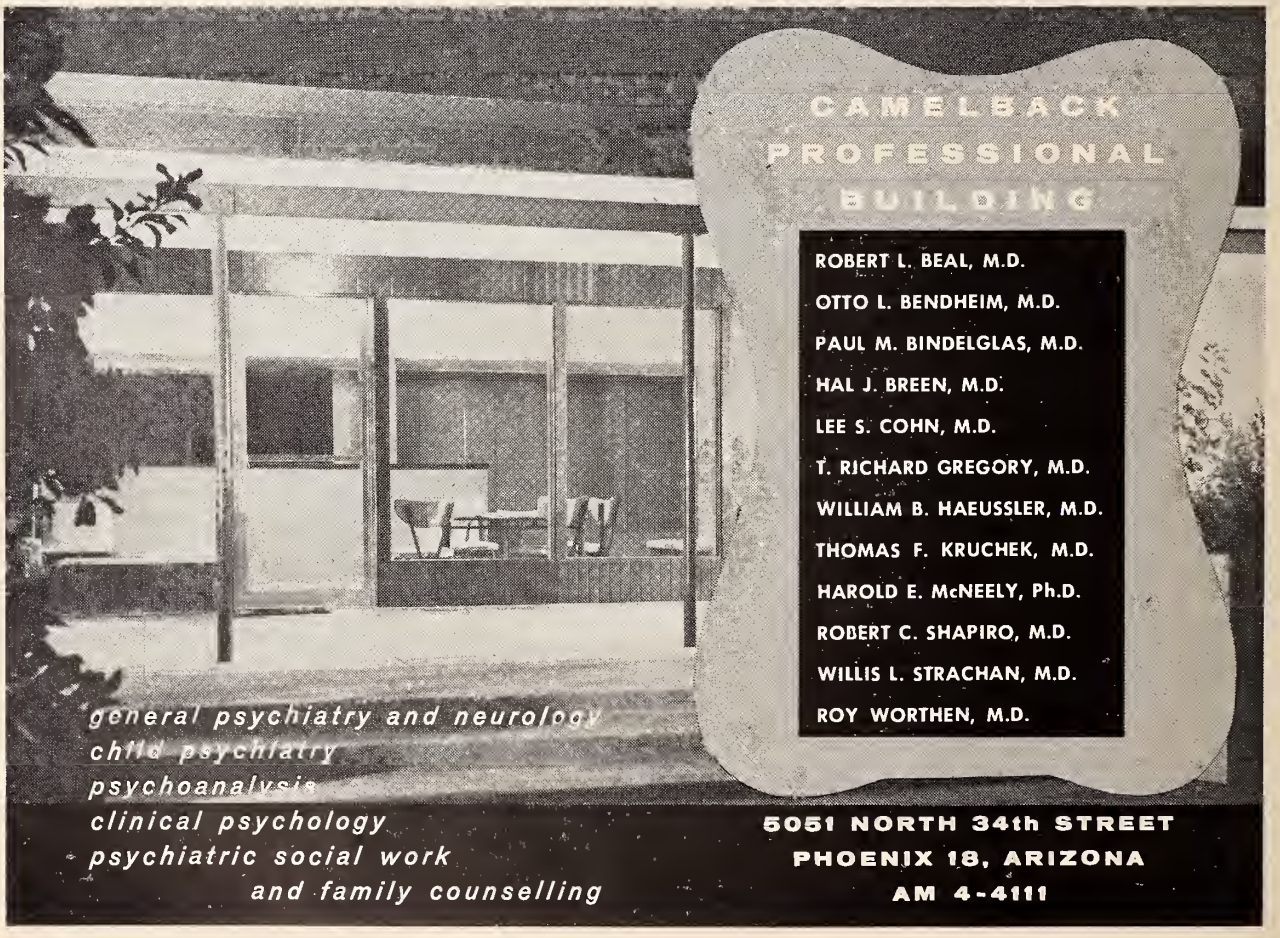
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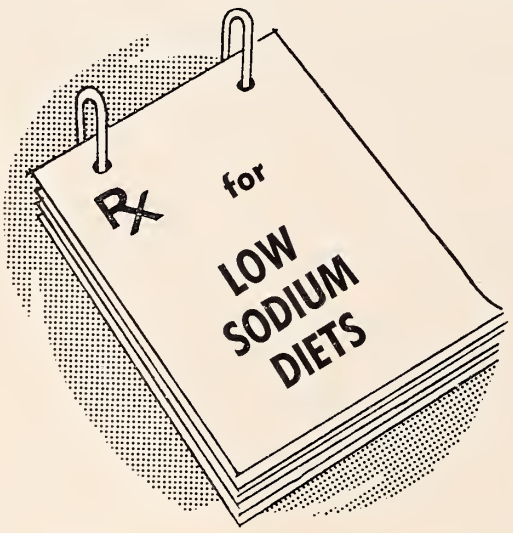
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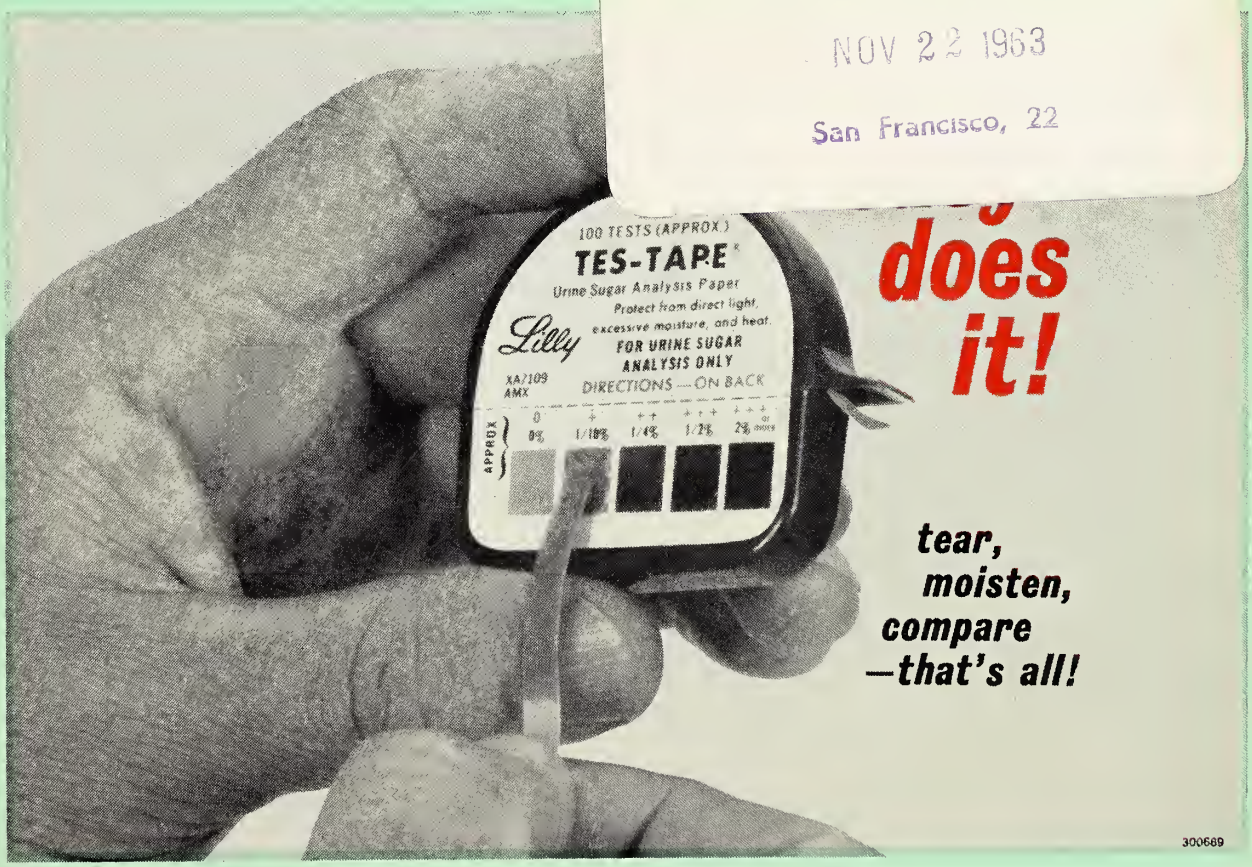
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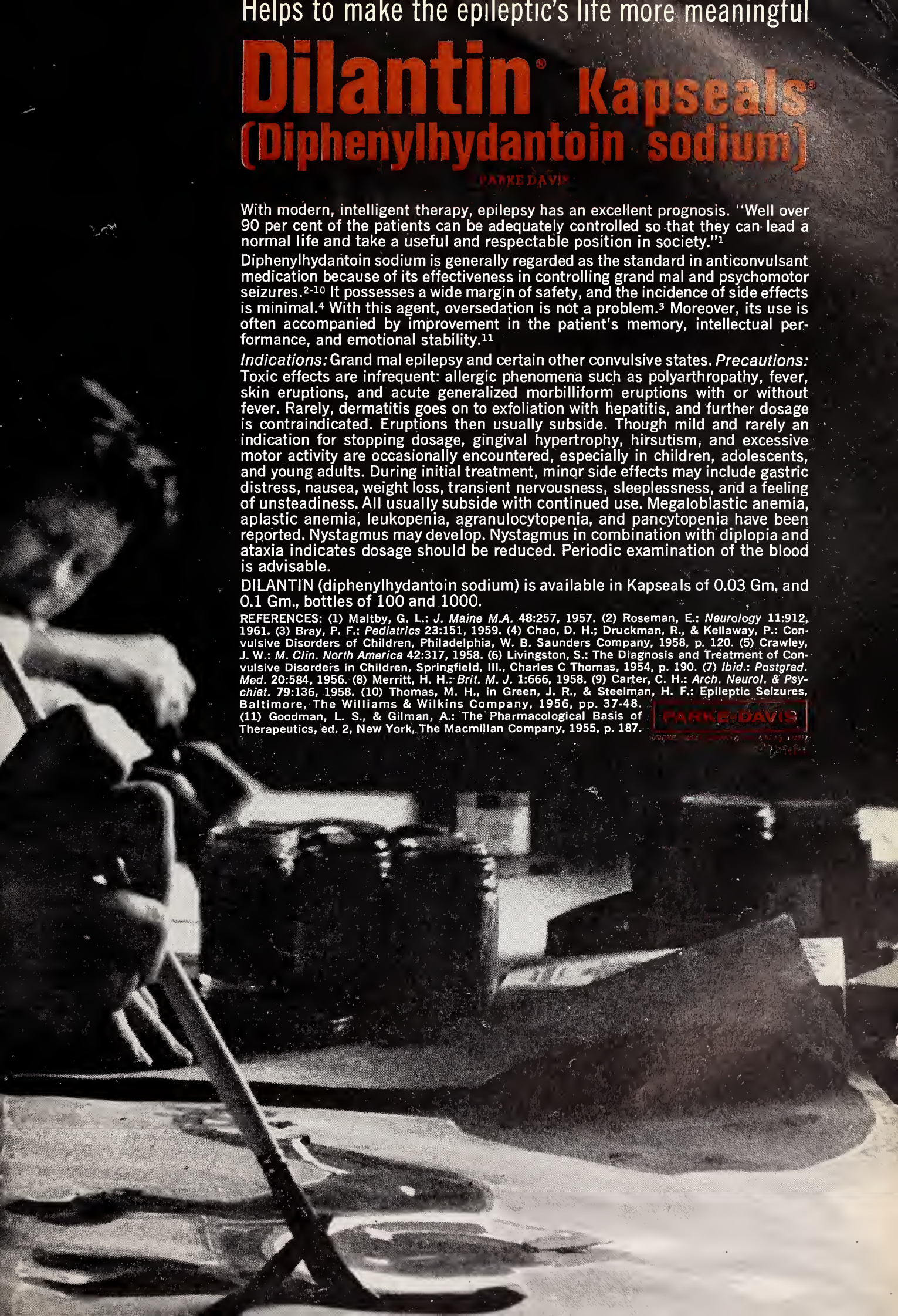
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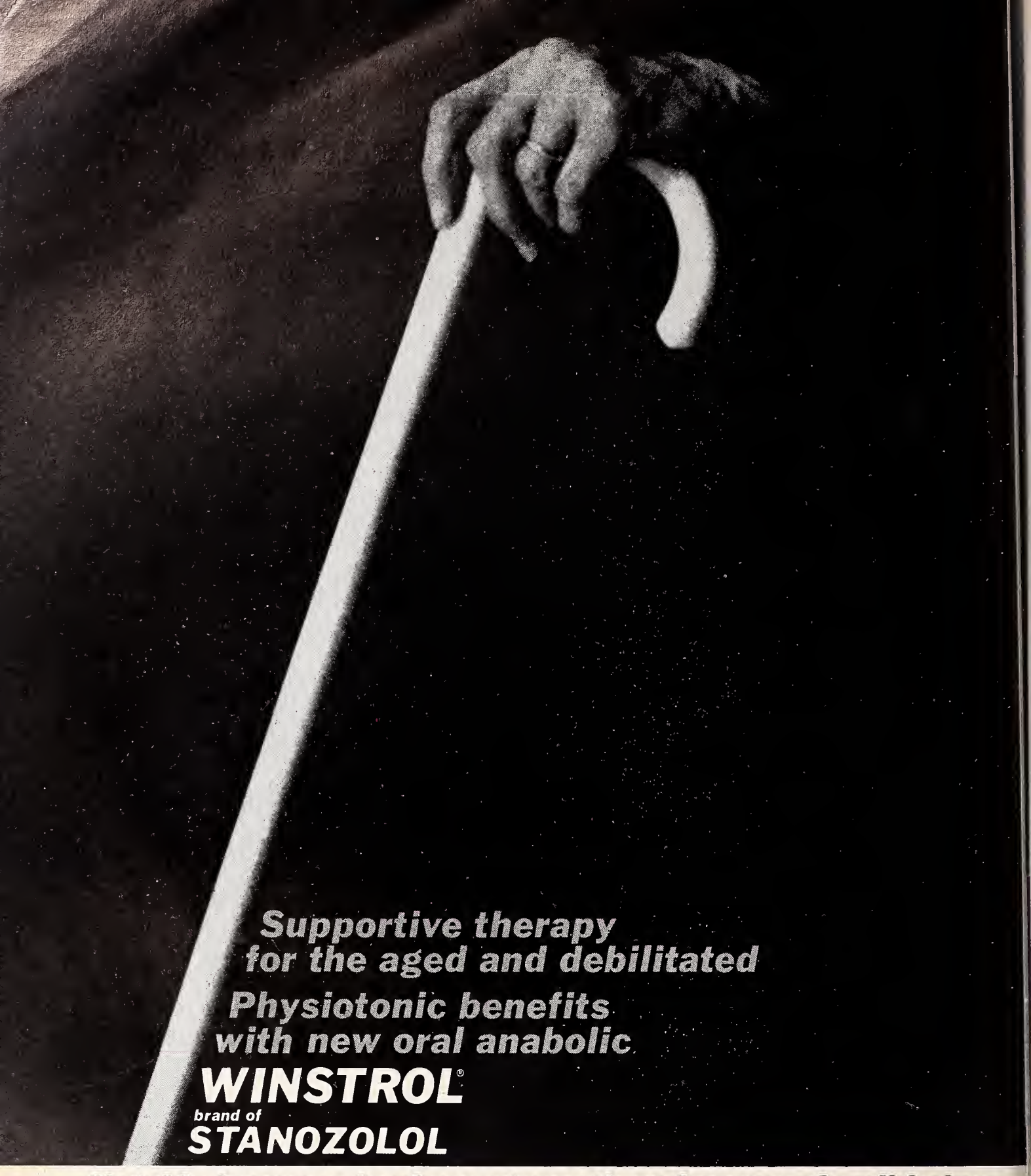
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November, 1963

Vol. 20, No. 11

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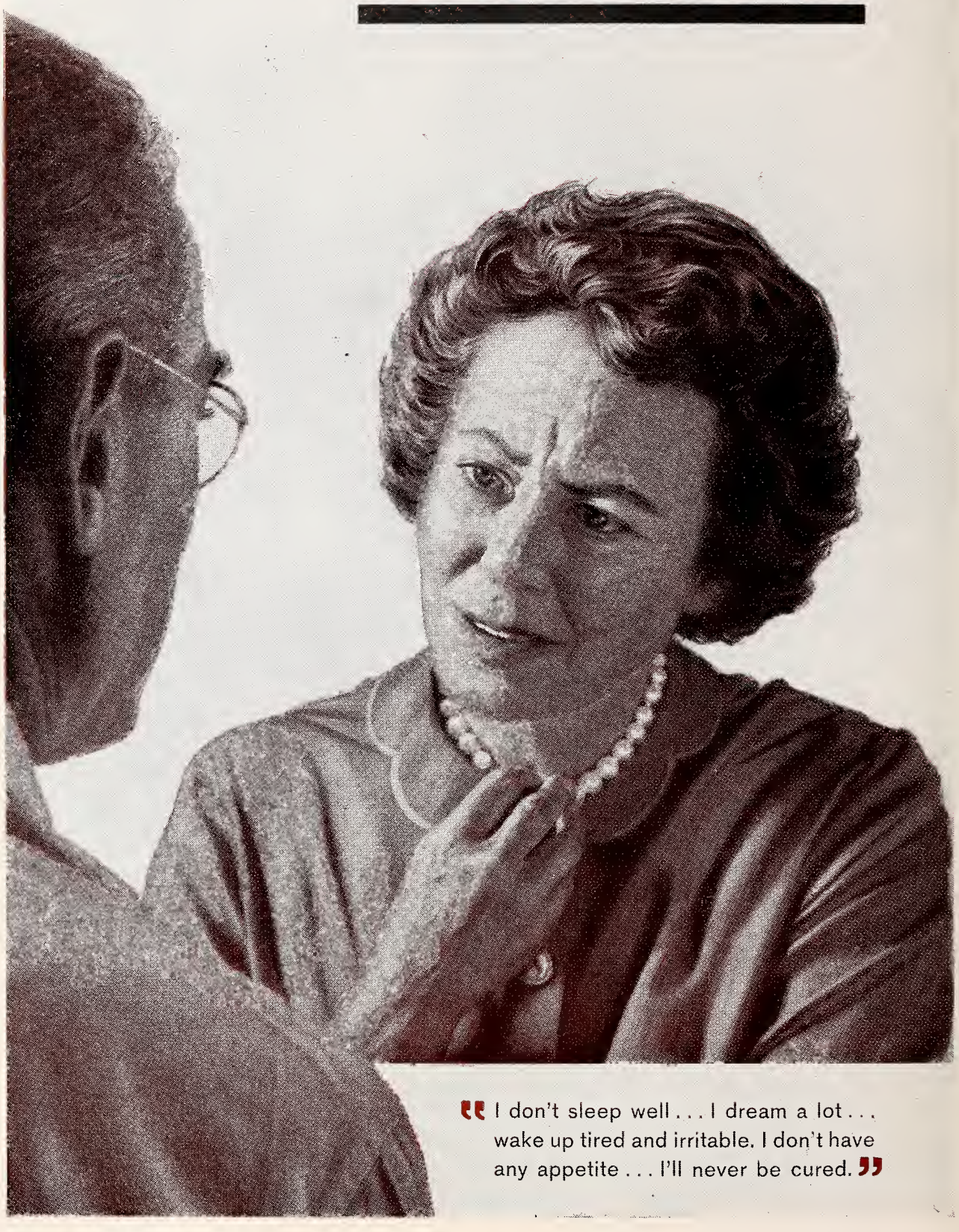
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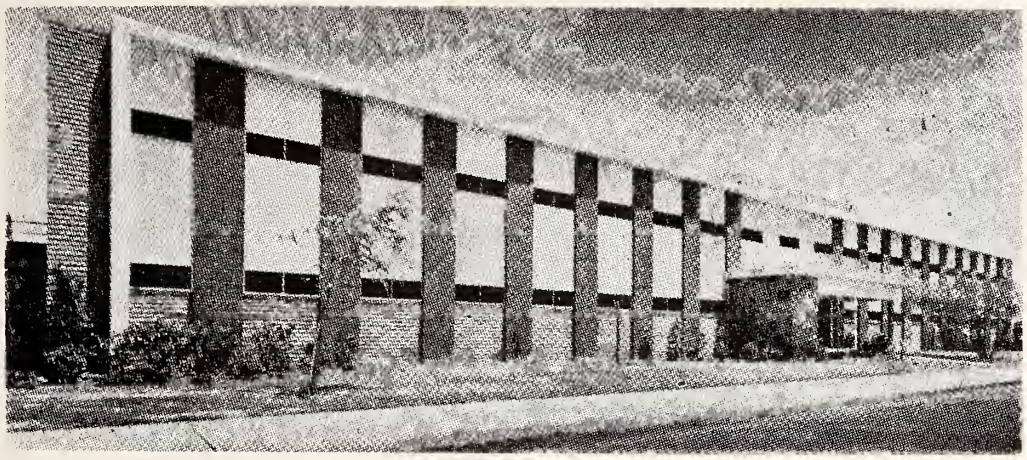
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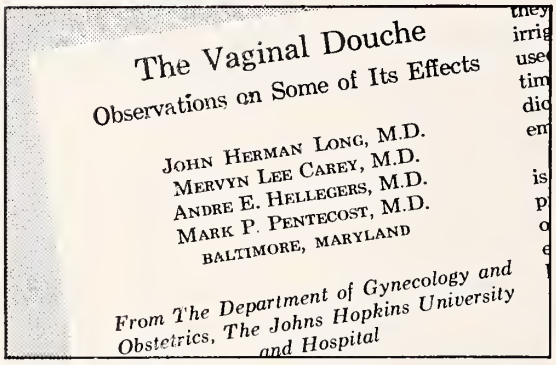
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1. West. J. Surg., Obsts. & Gynec.: *71*:122-127, 1963

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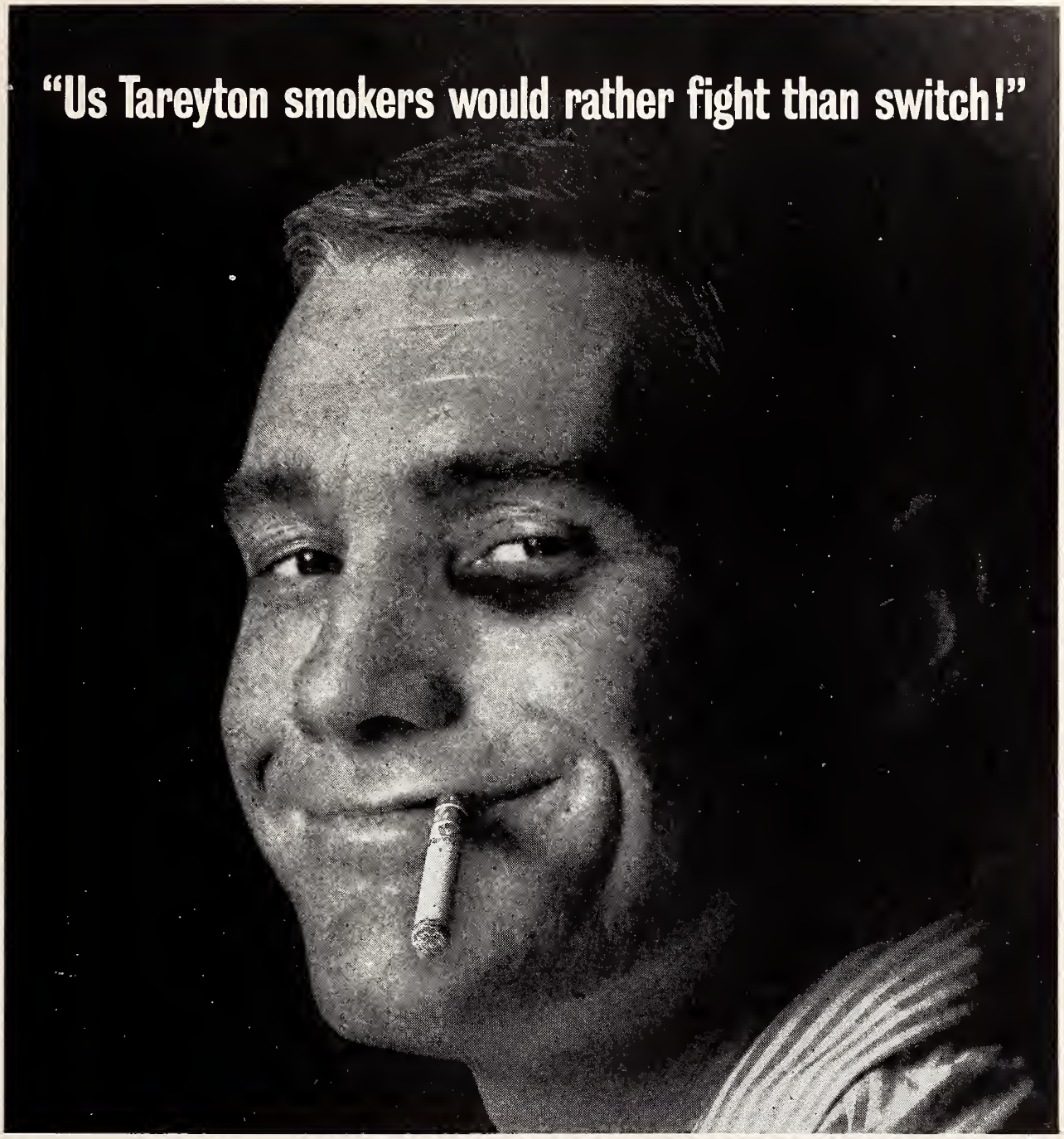
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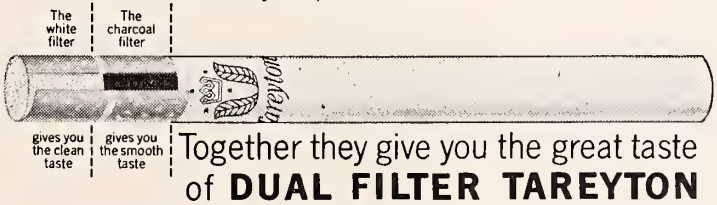
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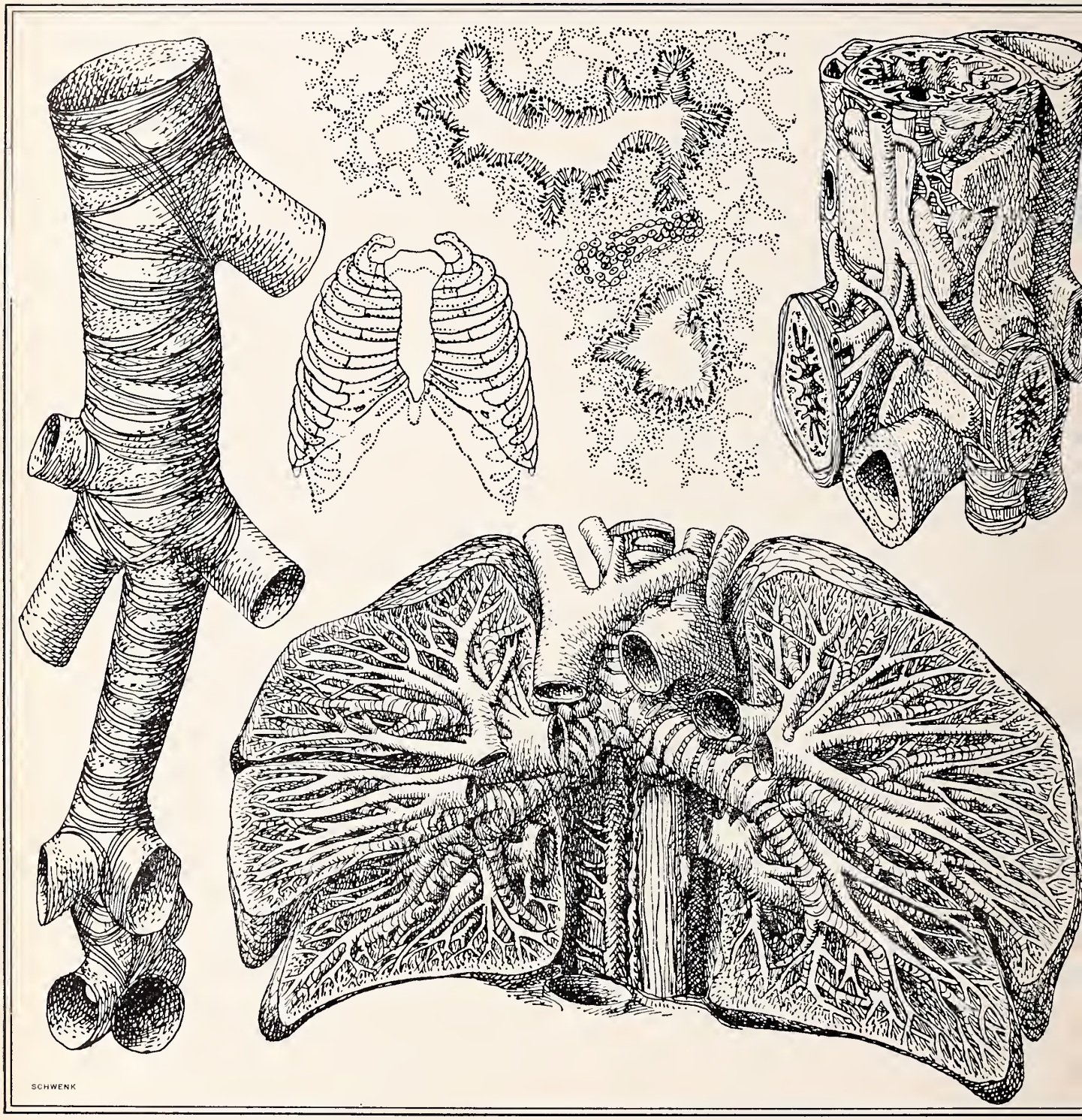
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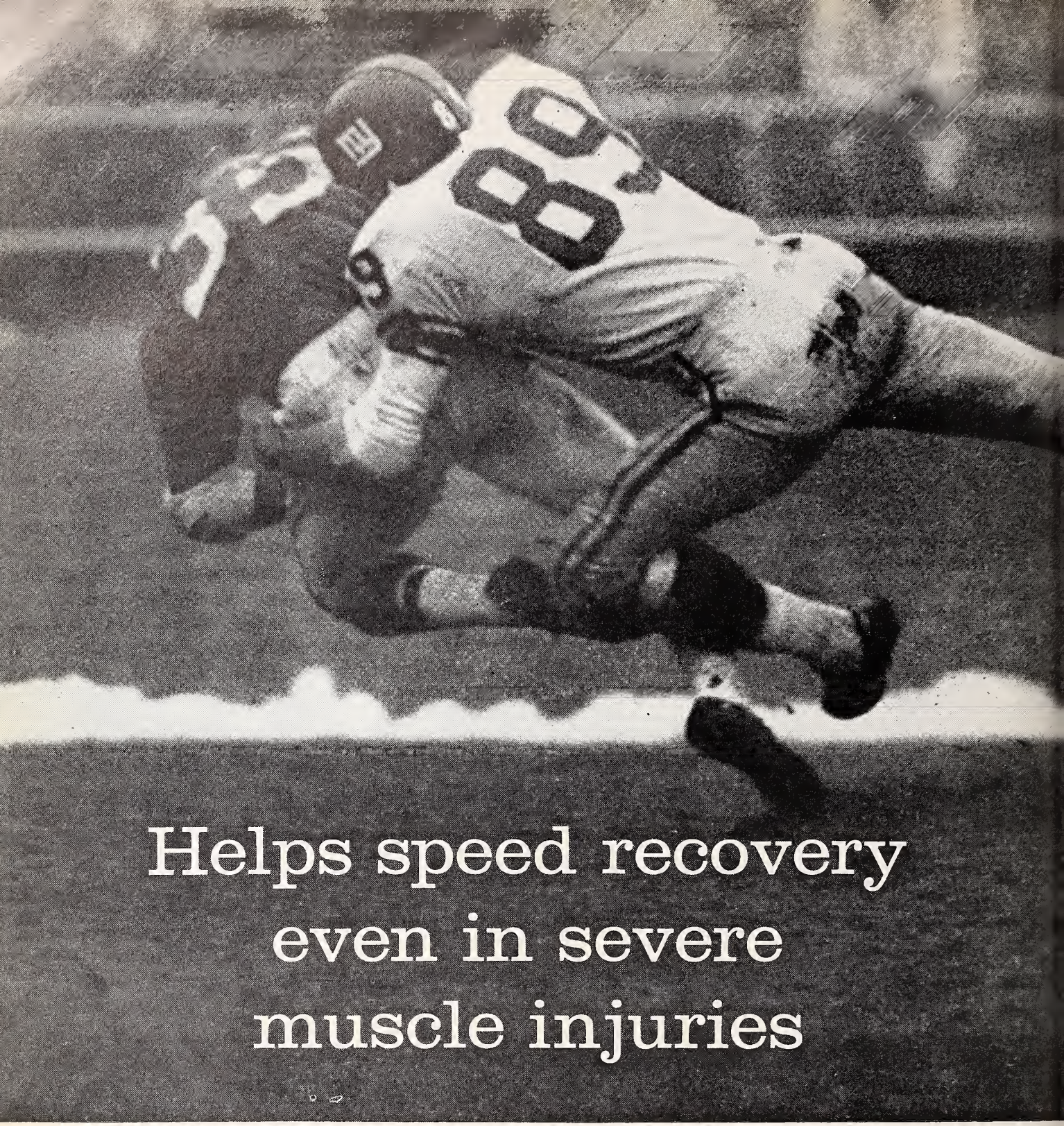
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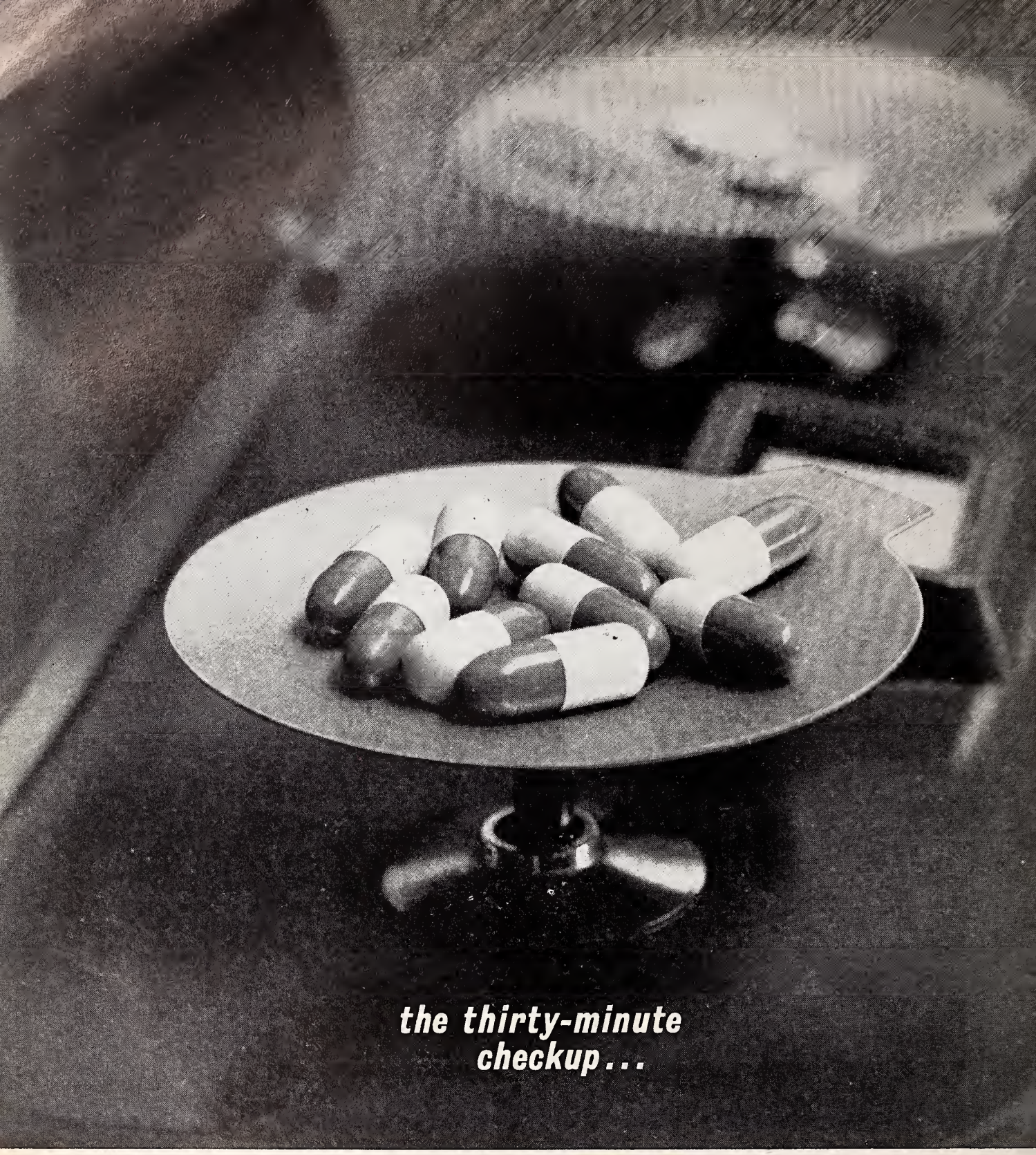
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The Phoenix

by
MacDonald Wood, M.D., F.A.C.S.

"from their ashes shall be rear'd a phoenix,"
Shakespeare
(1 Hen. VI, iv, 7, 93)

The alchemist and surgeon join hands in the adoption of a symbol.

HAVING been a member of the Denver Academy of Surgery when practicing in the mile-high city, having been a founding member of the Phoenix Surgical Society and now its president, and having been encouraging in the organization of the Tucson Surgical Society, it is with joyous and gratifying emotion that I welcome you to our first joint meeting. I consider it a pleasure and an honor to greet you. May we all hope for the continuation of such meetings.

The privilege of the chair permits me, with your indulgence however, to deviate from pure surgical discourse to the field of mythical ornithology, and to direct your thoughts to the phoenix bird. Not only is the placing of a drawing of it upon the certificate of the Phoenix Surgical Society deserving of some clarification, but its legendary history is exceptionally beautiful to contemplate and to behold.

Welcoming address of the president of the Phoenix Surgical Society at a joint meeting with the Denver Academy of Surgery and the Tucson Surgical Society at Mountain Shadows Resort, Scottsdale, Arizona, on May 15, 1962.

Editor's Note: All of the Original Articles in this issue are from papers delivered at the joint Phoenix, Tucson, Denver Surgical Society meeting held in Scottsdale, Arizona, on May 15, 1962 under the auspices of the Phoenix Surgical Society. Other outstanding papers from this meeting include "Experimental Hepatic Artery Occlusion" by John T. Wrzesinski, M.D., Romeo Garcia, M.D. and Joan Beatty, R.N. (**Arizona Medicine**, Vol. 20, No. 8); "Unusual Lesions of the Jejuneum and Ileum" by C. H. Fredell, M.D. (**Arizona Medicine**, Vol. 20, No. 9); and "Atresia of the Colon" by Sherman Thorpe, M.D. (**Arizona Medicine**, Vol. 20, No. 12).

Traditional History

According to tradition, as related by Carrington[1], there could only be one phoenix in the world at a time, that it was always male[2], that it dwelt in paradise, and that it lived a long time. At intervals of 500 to 1000 years (some versions say 350 years, others, up to 12,954 years, while Tacitus, Annales vi, 28, gives 1,461 years, which corresponds to the Sothic cycle of the Egyptian calendar)[2] the phoenix became oppressed with the burden of the centuries and knew it had to die. Because death was impossible in paradise, it flew to the mortal world; over the jungles of Burma and Assam, the hot plains of India, the mountains of Afghanistan, to the spice groves of Arabia. There it loaded its wings with laudanum, frankincense, and other aromatic plants, and flew on to the coast of the Mediterranean, the area later called Phoenicia. The phoenix made its nest high in the palm trees* and awaited the dawn.

As the sun soared upwards, the phoenix sang a song of such beauty, that the sungod paused for a second in his chariot to listen. Then suddenly, he whipped his horses; sparks flying from the hooves and from the corona of the fire circl-

*Purportedly the word "phoenix" is also the Egyptian and Grecian name for palm tree.[2, 15] The Hebrew for palm tree was "phenice."[7]

ing his head fell upon the nest of the phoenix, turning it into a blazing aromatic funeral pyre.

As the ashes of the nest cooled, a little worm could be seen stirring in the remains of the phoenix's body. Within three days the worm had grown and changed into a new phoenix. As soon as it was strong enough this bird collected the ashes of its predecessor into a ball of myrrh and flew with them to Heliopolis and laid them reverently on the altar of the sungod. Then it winged its way eastward to spend the next 500 to 1000 years in Paradise when its own turn would come to return to the mortal world and die.**

The symbolism of resurrection and immortality is not difficult to interpret from this tale.

Natural History

Because the phoenix is a legendary and a mythical bird, its natural history obviously is impossible to obtain. However, Herodotus, Tacitus, Ovid, Pliny, Hecataeus, Manilius and Epiphanius have all attempted descriptions of the bird, and all have given gorgeous and beautiful plumage to this fabulous avian.[2, 3, 4] These poets have written descriptions of seeing and hearing the phoenix.[1] An Emperor of Rome, Heleogabulus, is reported to have consumed the phoenix in his usual gluttonous debaucheries in an exclusive banquet in 222A.D.[3]

The tuft, plume, and purple color of the body, mentioned by Pliny, suggests to orinthologists, as to what bird the phoenix may actually have been.[1, 8] The purple heron now inhabiting Egypt, is reminiscent of Pliny's description. Herodotus saw pictures that showed a red and golden bird about the size of an eagle.[4]

Associated Legendary Birds

Other legendary birds are often identified with the phoenix. The Arabs have the Al Salmandra, (Persian: Samandal), which was sometimes a four-footed animal, sometimes a bird living in fire.[4] (It was thought that the incombustible clothes woven of flexible asbestos were made of its hair or plumage). The Persian Simurgh was 30 birds in one and lived 1700 years, and when the young hatched, the parent of the opposite sex burnt itself to death.[4]

A giant bird called the Anka (Arabian) resembles the roc or Rukh, and the Garuda in Hindu Mythology. The Rukh, an enormous white bird, is described in the 2nd and 5th voyages of Es-Sindibad of the Sea, and is also mentioned by Marco Polo.[1, 3]

The Chinese Phoenix, Feng Huang, is a different bird from the Egyptian, and is associated with the Pheasant family (possibly related to the Great Argus Pheasant). Much confusion of thought and vague conclusions make answers to many questions of heritage futile. There are many phoenixes in the Han dynasty. The Feng Huang is a herald of auspicious events. It is a Red Bird of the South, and is a biological mosaic of parts of several sorts of birds, obviously a hybrid. The Han Phoenixes were bisexual, needing no partners for mating, the male element in Feng, and the female in the Huang. The phoenix is the emblem of the south, the summer and the morning, and is associated with the color red.[5, 6]

The Chinese call the yellow phoenix ToFu, (resplendent fire?).

There is a Japanese Phoenix that is known as Foo, or Ho or O.[5, 6]

Earliest Egyptian History

More accurately, the mythology of the phoenix can be traced to Egypt. A belief was held among the earliest Egyptians that the spirit of the sungod abode in the Ben stone (small obelisks, circa 3000 B.C.), and at the creation emerged from the pyramidon (the pyramid top) in the form of a bird which was called benu. This is thought by some to be the origin of the phoenix myth.[8]

Clark, in discussing mythological symbols, presented a detailed analysis of the Egyptian doctrines.[9] Those pertaining to the phoenix are now concisely presented.

The orthodoxy in Egypt dated to the earliest religious writing in the Pyramid texts (2800 B.C.), which were composed by the Heliopolitan priests. Here was the temple of Re, High God as the Sun, or Atum, "the complete one." Utterance 600 is a prayer to the High God.

"O Atum! When you came into being you rose up as a High Hill,
You shone as the Benben Stone in the Temple of the Phoenix in Heliopolis."

AT THE beginning a light-bird, the phoenix, had alighted on the sacred stand, the Primeval Mound, known as the Benben, to initiate the visible God. In the Book of the Dead, the appearance of Atum and Shu (Father of the God) is equated with the call of the phoenix who delivers the message of life. The coming of the sacred bird upon the stone of Heliopolis is a

**This story is a condensation of a legend recounted at length by Richard Carrington in "Mermaids and Mastodons."[1]

symbol for the shining of the first light.

The phoenix, known to the Egyptians as the Benu bird, was one of the primeval forms of the High God. The Shu text epitomized the appearance of light and life . . . as, "that breath of life which emerged from the throat of the Benu Bird, the son of Re in whom Atum appeared in the primeval nought, infininity, darkness and nowhere."

The phoenix embodies the declaration of destiny which mediates between the divine mind and creative things.

When the phoenix gave out the primeval call, it initiated all the cycles of time, so it is the patron of all division of time, and its temple at Heliopolis became the center of calendrical regulations.

The phoenix was also the Chief messenger from the "Isle of Fire," the inaccessible land of divinity.

From the Book of the Dead we learn that "the phoenix came from the faraway world of eternal life, bringing message of light and life to a world wrapped in the helplessness of the primeval night. Its flight is the width of the world . . . to land in Heliopolis, the symbolic center of the earth where it will announce the new age."

Clark demonstrated that Herodotus, being unfamiliar with the heart of the Egyptian religion, misunderstood the symbol of the phoenix and manufactured a fairy tale which evolved into the accepted story of the phoenix.

Representations of the Phoenix

Only a few of the numerous representations of the phoenix in history and in the city of Phoenix need be mentioned.

The phoenix was introduced into Christian Symbolism as early as the first century when the legend of the bird was related by Saint Clement in his first epistle to the Corinthians.[11] The Phoenix appears in Job XXIX, 18; "I shall die in my nest, and I shall multiply my days as the phoenix." (The latter is variously translated: "sand" in the Authorized Version, for example, but "phoenix" seems more accurately to fit the context.)[4] In the apocryphal "Book of Enoch" the Phoenix appears as a great serpent with a crocodile head.[4] The phoenix appeared in early Christian art on funeral stones, meaning resurrection of the dead and triumph of eternal life over death.[11] Our present symbols of faith, represent the phoenix as resurrection and immortal life.

Though the phoenix was popular in the art of the middle ages, it was rare in Italian renaissance painting.[11] Rembrandt's allegorical etching (Phoenix) in 1658 is believed to symbolize a victory of the Dutch in their war of independence against the Spaniards.

Numerous medals have been cast depicting the phoenix. "On the reverse of the fine medal of Giulia Astallia, probably by Piei Jacapo Alair Bonacalsis, appears the phoenix rising from the flames, which symbolize the lady's fortitude and chastity."[8] Two English medals were struck for Elizabeth's recovery from smallpox.[8] "The first one, struck in 1572, shows on the reverse the hand of St. Paul which is unharmed by the serpent that is shown fastened to it, as an anology of Elizabeth being unmarked by the disease. The other medal, dated in 1574, has on the reverse the phoenix, used as a symbol of Elizabeth's recovery, and also her personal badge."[8]

The first great seal of the United States (1782) showing a bird with tufted head, and the great seal of 1902 displaying a bird without a tuft, aroused some controversy as to whether a phoenix was originally represented.[14]

MORE directly impressive is "the badge of the Headquarters of the Supreme Allied Command South-East Asia, which consisted of a blue phoenix on a white ground rising from red flames encircled by a blue border. The phoenix symbolizes Allied Power rising from the ashes of the countries occupied by Japan."[8]

The colophon on the Great Books portrays a phoenix. In correspondence with Robert M. Hutchins,[10] he stated, "It is an adaptation of the seal of the University of Chicago and is intended to reflect the connection of Encyclopedia Britannica and Great Books with that University. The reason the phoenix is on the seal of the University of Chicago is that the University was founded some twenty years after the Great Fire, which was still present in the minds of the population at that date."

The reverse side of the Seal of the State of Virginia depicts Aiternital with a globe and a phoenix in her right hand. Below the shield on the Seal of Hawaii is a phoenix rising from flames expressing eternal life.[8]

Representations in the City of Phoenix

Reportedly, Brian Phillip Darrell Duppa (circa 1869) named the city of Phoenix, after gazing on the ruins of ancient canals and buildings. Presumably, he said, "a new civilization shall rise

phoenix-like from the ashes of the old."

A beautiful tapestry, now hanging in the Phoenix Public Library, depicting the phoenix bird, was presented in 1954 to the city of Phoenix by Mrs. Walter Douglas, aunt of former ambassador to England, Mr. Lewis Douglas. It was made in Scotland by Queen Elizabeth's royal weaver, Ronald Cruikshank for the Coronation Festival.

The decal of the phoenix bird appears on all city owned vehicles, and was designed by Mrs. Dorothy Bergamo and Mrs. Stephen Langmade.

On the side of the office building of the Phoenex Box and Label Company is a unique phoenix bird in brass rods with stained glass feathers, created by Arthur Kraft.

Two beautiful interpretations of the phoenix, have been presented as original monumental works. Both were designed by Paul Coze of Phoenix, Arizona.* One creation is a twenty foot high phoenix bird made of wrought iron and stained glass that stands at the entrance of Town and Country Village on East Camelback Road (iron work by George Cavalier, and glasswork by Flemish Glazenier). The most recent conception is the three dimensional mosaic in the center panel (16 x 25 feet) in the lobby of the new Phoenix Sky Harbor Municipal Airport Terminal. Here, the phoenix is shown as a gigantic, brightly feathered bird, composed of over fifty materials, including metals, gems, sand, rocks, earth, wood, shells, coral, glass, canvas, paint and plastics.

Upon the certificate of the Phoenix Surgical Society, is a multi-colored majestic phoenix, brilliantly plumed, designed by Ken Wingfield, Jr. (initially commissioned for its production by the First National Bank of Arizona.)

Conclusion

This has been a brief and cursory discussion of the history of the phoenix and of the representative symbols of the bird. The original (Egyptian) meaning of the phoenix was the principle of life, not in any particular form, but as a constant divine power. The distortion of this by Herodotus has provided the source of the surviving interpretation, that being, life, death, and resurrection. The significance of the phoenix is now popularly well understood as resurrection and immortal life, and this symbolism will undoubtedly persist throughout time.

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Addendum to "THE PHOENIX"

A recent acquisition by the Phoenix Art Museum has been a bejeweled phoenix bird created by and donated by Pierre J. Touraine, designer, craftsman and gemcutter, as an expression of gratitude to his adopted country and city.

The Phoenix Jewel is made of platinum and yellow gold, with diamonds and baguettes; a small piercing blue sapphire is its eye. The bird is shown rising from flames represented by flashing red Burma rubies. This beautiful creation is estimated to be worth $85,000.

ADDENDUM NO. 2.

Since the submission of the above paper a superb article, "The Phoenix Bird," by Paul Coze, describing the legend, and profusely illustrating phoenixes in history and in the present, has been published in "Arizona Highways," Volume 39, No. 3, pages 2-13, March, 1963.



MacDonald Wood, M.D.

*an artist, anthropologist, and author, who, currently is writing a compendium of the knowledge of the Phoenix Bird, provided his manuscript for my perusal, (the source of some of the material contained in this article.) His "Phoenix" dwarfs this author's presentation for completeness and it will be a great monograph to possess.

Fibrosarcoma of the Female Urethra

by

Virgil S. Counseller, M.D.

George B. Kent, Jr., M.D.

One of the reasons for the apparent rarity of sarcoma of the urethra is the failure of individual urologists to report solitary cases in their lifetime of practice. Since these lesions are rare very few physicians see more than one case in years. The case here reported is a well documented and well treated instance of this pathologic lesion of the female urethra. It is to be hoped that reports such as this one will stimulate other physicians to report single cases of rare disease entities in the medical periodicals.

MALIGNANCY of the female urethra seems to be on the increase. These malignancies have been classified as undifferentiated, squamous cell carcinoma, or adenocarcinoma, sarcoma, and melanoma. Until 1933 there were very few cases reported in the literature. The reason for this, as Latzko[17] suggested, may be that the physician who comes in contact with such cases does not recognize the rarity of the condition and fails to report it. Or it may be that the urethral mucosa is essentially immune. In any event, in a search for records of such cases we were surprised to be able to find only about one hundred authentic cases when one of us reviewed the literature in 1933 at the Mayo Clinic.[3] It appears that the first case was reported by Boivin and Duges[2] in 1833. The first case in English literature was reported by McGill[12] in 1890. There seems to be some difficulty in establishing the authenticity of earlier cases although Serph[13] believed he had reviewed thirty cases in 1901; Percy[14] in 1903 reduced that number to twelve. Shaw[15] brought the number to 102 in 1923 and Palmer[16] to 105 in 1925.

The most extensive study was written for the Urological Survey by McCrea[1] as a review article in April, 1952. McCrea states that he reviewed 546 cases of malignancy of the female urethra, all of which were substantiated by histological study. From his studies he concluded that carcinoma of the female urethra is about twice as common as carcinoma of the male urethra, both of which are rarely seen even by urologists of extensive experience.

These malignancies for purpose of description and study have been arbitrarily divided into two main categories on the basis of anatomic position of the carcinoma. The vulvo-urethral type begins its spread from the urethra and later invades the vulva. The urethral type of carcinoma begins at a point anywhere distal to the bladder neck and spreads by direct extension to the urinary meatus or bladder or both, and also into the tissues surrounding the urethra. McCrea in

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Dr. Counseller is from the Division of Surgery and Dr. Kent is from the Division of Pathology, St. Joseph's Hospital, Phoenix, Arizona.

his review is the only one to mention sarcoma and melanoma, both of these being quite rare. The report of this case is a sarcoma of the urethra of the vulvo-urethral type which was treated surgically. The case history and follow-up studies are herewith recorded.

Case Report

The patient at age 41 was having menorrhagia and metrorrhagia for which X-ray therapy was given. The dose is not recorded. About eight years later she began to have some tenderness at the urethral meatus. A biopsy was taken and reported to be benign (this tissue not available for study). About one year ago at the age of 68 she began to have trouble urinating and had to go to her physician for dilatation of the urethra. This improvement lasted for several weeks but gradually the urethra closed. She went into the hospital and was dilated and a catheter was inserted for five days. This improvement lasted for about three months and then urethroscopic examination and biopsies were made. On May 18, 1961, biopsy No. 1 was taken. In July 1961, a further examination was made and biopsy specimen No. 2 was removed. Then in October the same year a re-examination was made and biopsy specimen No. 3 was taken because of considerable dysuria and dribbling of urine, repeated attempts at urination before the bladder felt empty, and a growth from the urethra which extended down each labium minus.

Physical examination reveals a lady 70 years of age who is 5'4½" tall. Her present weight is 155 lbs. She is not actually ill. The blood pressure is 130 systolic, 70 diastolic. Head and neck show nothing of significance. There is no cervical adenopathy. Chest: The breasts are normal, lungs clear and of good expansion; heart is of normal size and without murmurs. There is no edema of the extremities. Abdomen: There are no masses palpable and no scars. The liver is not palpable. Pelvic examination reveals an indurated fungating growth involving the entire urethra, completely obscuring the urethral meatus. This growth extends down both labia minora. The induration seems to extend the full length of the urethra, probably extending to the trigone of the bladder. The whole structure is movable and no inguinal glands are palpable.

Symptoms

The most common symptom of tumor of the urethra has been found to be a mass or tumor at the meatus protruding from the meatus or along the urethra. Many authors state that bleeding is the most common symptom. The most common tumor of the female urethra, of course, is the urethral caruncle. All urethral caruncles should be examined for malignancy. The development of carcinoma in a caruncle is considered to be remote. Urethral caruncles are common in the age group wherein malignancy of the urethra develops and one seldom sees malignancy in a caruncle itself. Bleeding on urination or bloody discharge is a most pertinent symptom, and pain or painful urination with frequency are next in the order of complaints given. Ulceration of the tumor occurs and gives rise to painful symptoms. Urinary retention is common and is a frequent complication of female urethral tumor.

Surgical Procedure

A low midline incision was made extending to the left of the umbilicus. Preliminary investigation did not show any extension or attachment of the tumor in the pelvis. In the abdomen the gallbladder was negative to palpation for stone. The stomach, liver, kidneys, spleen were all normal. The hital openings were closed. Preliminary bilateral ligation of the internal iliac arteries was done, using three ties of black silk. We then proceeded to do a total cystectomy, total hysterectomy, bilateral salpingo-oophorectomy, vaginectomy and urethrectomy. All the pelvic structures were mobilized down to the pubic bone and then placed deep in the pelvis behind the peritoneum. The ureters were then transplanted to the bowel using mucosa-to-mucosa technique, and end-to-side anastomosis. Triple 0 chromic catgut was used all the way around using interrupted sutures. The bowel was then sutured over the ureter into a trough made by separating the mucosa from the muscularis of the bowel. This was done on each side and then the anastomosis was sutured to the parietal peritoneum. There was considerable back bleeding of venous blood. The patient was given four pints of blood during the operation. The abdomen was closed and the patient was then put in the lithotomy position and a vulvectomy performed together with removing the vagina and urethra, and pulling the uterus and bladder through the posterior wound. The cavity when dry was well walled off with the posterior peritoneum and this cavity was then packed with Kerlix gauze to be left in for about ten days.

A large rectal tube was placed in the rectum for drainage of urine. The posterior wound was closed with interrupted catgut. The patient was in good condition at the conclusion of the operation.

Pathology

The initial biopsy of the urethra was examined in May 1961. The specimen was a pyramidal-shaped, grey, firm tissue measuring 1 cm. in maximum dimension. The mucosal epithelium, where present, essentially was nonremarkable (a finding consistently repeated when further biopsies were submitted, as well as when the gross tissues of the pelvic exenteration were examined. The greatest degree of mucosal change at any time seen was a reactive hyperplasia. At no time was a malignant epithelial lesion identified.) The tissue demonstrated closely-arranged, interwoven fibrils of dense fibrous connective tissue, the fibers showing excellent collagenization and excellent differentiation. (Fig. 1). Where more loosely woven, changes of edema were noted. In one portion of the fragment there was minimal cellularity associated with hyalinazation of tissue considered secondary to neerosis. Where most cellular, the nuclei were elliptical in shape, showed little irregularity in nuclear outline, and rarely showed increased condensation of basophilic chromatin substance. Nucleoli were not evident. Careful search revealed extremely rare, but unequivocal, mitotic figures. Confirmation of the fibroblastic origin of the neoplasm was made by utilization of van Gieson's[5] and Masson's[5] trichrome stains. The diagnosis entertained was probable low-grade fibrosarcoma. When clinical information was obtained stating that the patient had been treated in the past by x-radiation therapy, it was felt that the changes may have been reactive in nature and non-neoplastic; consequently, a revised diagnosis of reactive fibrosis was rendered.

Approximately two months later another biopsy was submitted, this consisting of a firm, grey, homogeneous tissue "nodule" measuring 2 cms. in maximum dimension. Microscopic examination revealed a pseudo-encapsulated, spindle-cell neoplasm exhibiting considerably more activity than at previous biopsy. The basic pattern of varisized fascicles of elongated spindle cells arranged in interwoveen patterns was still maintained. However, the degree of cellularity had conspicuously increased. Nuclei were now more plump in appearance, but again, usually elliptical in shape.



Fig. 1

Photomicrograph of the first biopsy shows quite mature collagenous connective tissue of a degree of cellularity no greater than seen in cases of benign reactive fibrosis. Nuclear pleomorplism is minimal. X100.

Nuclear irregularity was more conspicuous, and occasional nuclei showed clearly definable hyperchromatism. Where best differentiated, definite fibrils were being produced by the anaplastic cells, but were not distinctively of connective tissue origin. Indeed, a differential diagnosis of leimyosarcoma was for a time entertained upon examination of this biopsy specimen. Mitotie figures could now be found without difficulty at 430 X magnification. With van Gieson's stain the tissues showed a somewhat uneven red-orange blush under low-power magnification, and in some of the most cellular areas a confusing admixture of yellow was noted. Under high magnification, however, both thin and thick red-stained fibrils could be readily identified, and the fibroblastic nature of the tumor was confirmed. This was supported by a positive Masson's trichrome stain exhibiting the characteristic intense blue fibers of the fibroblastic origin.



Fig. 2

Photomicrograph of the fibrosarcoma removed by radical extirpation. The scarcomatous nature of the neoplasm is evident. Nuclear concentration is greatly increased, and pleomorphic, sometimes giant nuclei are scattered at random. X100.

The third biopsy, taken three months after the second, consisted of two irregular masses of light brown and white, firm tissue, of approximately equal size, each measuring 1 cm. in maximum dimension. The basic histology of the neoplasm remained the same, although the cellularity showed a further increase. Nuclear pleomorphism was slightly greater than in the preceding biopsy. van Gieson's and Masson's trichrome stains, again, confirmed the lesion as a fibrosarcoma.

IN JANUARY, 1962, a radical pelvis exenteration was performed. When received in the laboratory, the specimen consisted of an en bloc dissection of the vulva, vagina, cervix, uterus, bilaterian Fallopian tubes and ovaries, urinary bladder, and urethra. When laid out in its anatomic position, the specimen measured 30 x 12 x 4 cms. The external urethral meatus was obliterated by a fungating, firm, pink-white neoplasm measuring 3.5 x 3 x 2 cms. The closest gross margin of resection measured no less than 1 cm. from the neoplasm. (Free margins of excision were confirmed microscopically). The exophytic lesion was noted to be quite superficial, and apparently had not invaded deeper structures. The urinary bladder and proximal urethra were clearly delineated and without neoplasm. The vagina and internal genitalia were not involved by neoplasm. Microscopically, the lesion was confined to its gross anatomic location, exhibited only minimal infiltration of deeper structures, and exhibited no metastatic foci. The histologic pattern was, again, that of a fibrosarcomatous neoplasm, (Figs. 2 and 3) essentially similar in appearance to the third biopsy taken

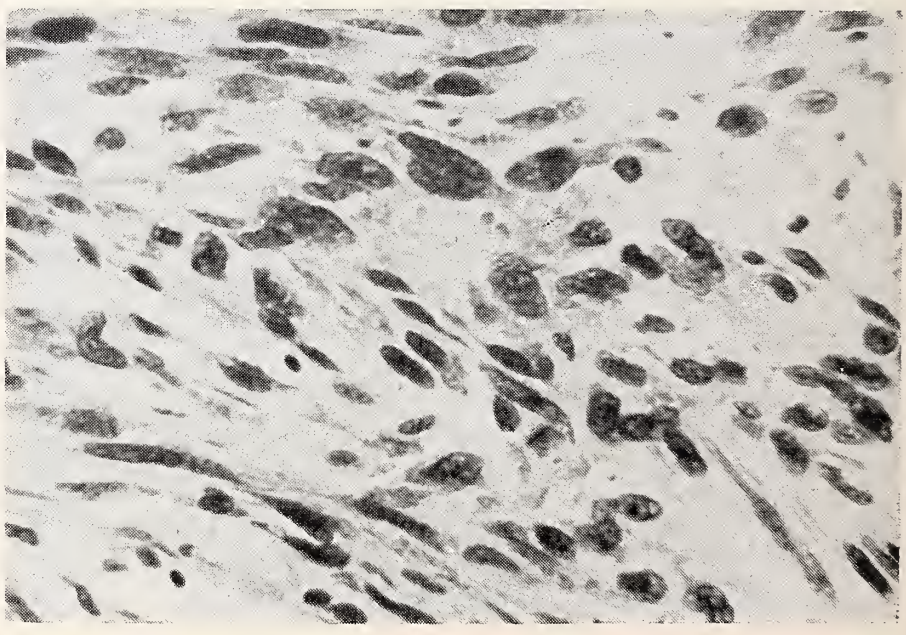


Fig. 3

Photomicrograph at higher magnification of the central portion of Fig. 2 to demonstrate nuclear detail. X430.

prior to the surgical removal. Pleomorphism of cells and nuclei was only slightly increased, and increase in mitotic activity was equivocal. However, for the first time, clearly demonstrable abnormal mitoses (tripolar mitoses) were evident.

Discussion

Sarcomas of the vulva are extremely rare, and of these only 11% arise in the peri-urethral tissues. The age range is great, from infancy to old age, the average being 40.5 years. This is in contrast to carcinoma, which occurs in much older women, average 61.5 years of age. Of the vulvar sarcomas, Kehrer[6] collected seventy-five cases up to 1929. Taussig[7] added two more in 1937, and Ober et al,[8] added one and referred to three others in 1953. In the ten cases of vulvar sarcomas studied by Stout[9a] in 1958, only one was a fibrosarcoma.

Hertig and Gore[9] state of the malignant tumors of connective tissue origin arising in the vulva, approximately 60% occur in the labia majora. The rate of growth of any particular tumor can not be prognosticated, considerable variability having been noted. Some remain stationary for some time, and then grow rapidly. Others initiate as a rapidly growing neoplasm. Of the various sarcomata Anderson[11] states fibrosarcoma is the most common.

All types of malignant tumors of the urethra are uncommon. McCrea,[1] in summarizing the literature, found only five hundred and forty-six cases of malignant tumors of the urethra. Of these, twenty-three were sarcomas, subtype otherwise not stated. Kehrer[6] cites fifteen cases collected by Nebesky up to 1911, and five more reported from 1911 to 1929. Glenn[10] collected a total of twenty-four cases up to 1953, including one of his own. The majority occurred in patients from 50 to 64 years. Most of the urethral sarcomas arise from the subepithelial connective tissues, and only a minority occurs in the region of the meatus. Types described include: Fibrosarcoma, lymphangiosarcoma, endothelial sarcoma, and nonspecific, large-cell, small-cell and spindle-cell types.

Treatment of malignancies of the urethra has never been standardized, nor has any one form of treatment appeared to offer any great advantage over another; consequently, treatment has been considerably varied through the years. Prior to 1918 these lesions were excised or submitted to radical surgical extirpation. However, about 1918 was the advent of radium and x-ray therapy in addition to surgery as well as radiation therapy alone. Some patients were treated by permanent cystostomies, permanent catheter drainage, or production of vesicovaginal fistula with partial resection of the urethra.

The report of twelve cases by Counseller and Patterson[3] in 1933 shows the various methods of treatment and results. The first four cases were treated by operation alone; then radium and roentgen rays were used in the next three. The remainder of the cases were subjected to both operation and radium. The result with one method of treatment is just about as good as the other. However, in none of these patients was fibrosarcoma mentioned. It is well known that fibrosarcoma does not respond to radiation, and in fact in many instances it may cause it to spread. Therefore, radical surgical excision was elected in this case. The method of treatment seemed quite obvious. The tumor mass was quite movable and the only fixation was in the anterior vaginal wall and in the region of the trigone. It seemed wise to attempt radical surgery with urinary diversion.

THE methods of treating malignancy of the female urethra described in the literature may be summarized as follows: 1) Radical excision of the urethra including a portion of the vesical neck. 2) Less radical excision leaving intact the vesical neck and sphincter. 3) Knife or electrosurgical excision followed by radiation. Or 4) radiation alone or a combination of radiation and excision.

The results have in general been poor no matter what type of therapy has been used. However, most of the reports are unsatisfactory in that few of the cases have been followed for as long as five years. In the senior author's series[3] reported in 1933, we had a group of twelve cases; four were treated with surgery alone, three with radiation alone, and five with a combination of surgery and radium therapy. Four of these cases were living after five years or longer and three after shorter periods. One case was lost and four were dead. Of those who died the average duration of life was twenty-five and one-half months. Our best results of five-year cures were obtained in cases treated with both radium and roentgen rays. McCrea[1] in his summary of the literature is the only one to mention sarcoma, and he has reported 23 cases found or traced in the literature. Since this case was diagnosed from

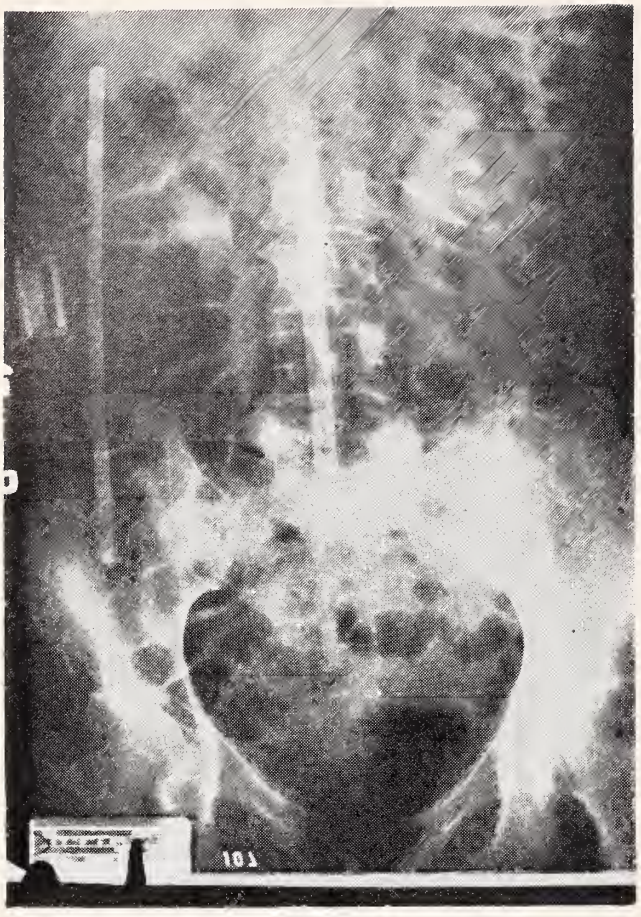


Fig. 4

Excretory urogram two weeks after surgery. Slight bilateral pyelectasis and calycectasis. This is a 20 min. I. V. P.

the biopsy as a sarcoma, we elected to treat it by radical surgery.

There are two points in the surgical treatment that deserve some discussion. The first is the bilateral ligation of the internal iliac arteries so that the dissection could proceed with greater accuracy than if one had to ligate the various vessels separately. The ligation of the internal iliac or hypogastric arteries as a routine provedure at the time of radical surgery is an optional one. It certainly reduces the arterial bleeding, and insofar as we know there are no harmful effects. When the patient is somewhat obese together with some fixation in the pelvis, either by invasion or by inflammation, then bilateral hypogastric ligation is a good idea. In some patients who are thin and where the pelvic organs are freely movable, it would not seem necessary to ligate the hypogastric vessels since the various branches can be seen and ligated as one proceeds with the dissection from one side of the pelvis to the other.

THE other problem to be discussed is the question of urinary diversion. Urologists and gynecologists are using the ileal loop with increasing frequency when it is necessary to do away with the bladder. However, it is necessary to use a urinal of some type attached to the abdomen at the site of the ileal stoma. This is an extremely satisfactory method of urinary diversion and is not followed as a rule by disturbance in the blood chemistry and electrolytes. In some instances, and this case presents an example, that ureterosigmoidostomy properly done can be an excellent procedure so that the patient would not have to be bothered by urinal ileostomy. Particularly so because this patient has had one or two nervous catastrophies. The end-to-side ureteral colonic anastomosis, if properly done, has been most satisfactory. The thing that one has to fear more than anything else is the absorption of urinary products from the colon or having an irritable colon that will not retain the urine. A few instances have been seen where it was necessary to take down the anastomosis and do

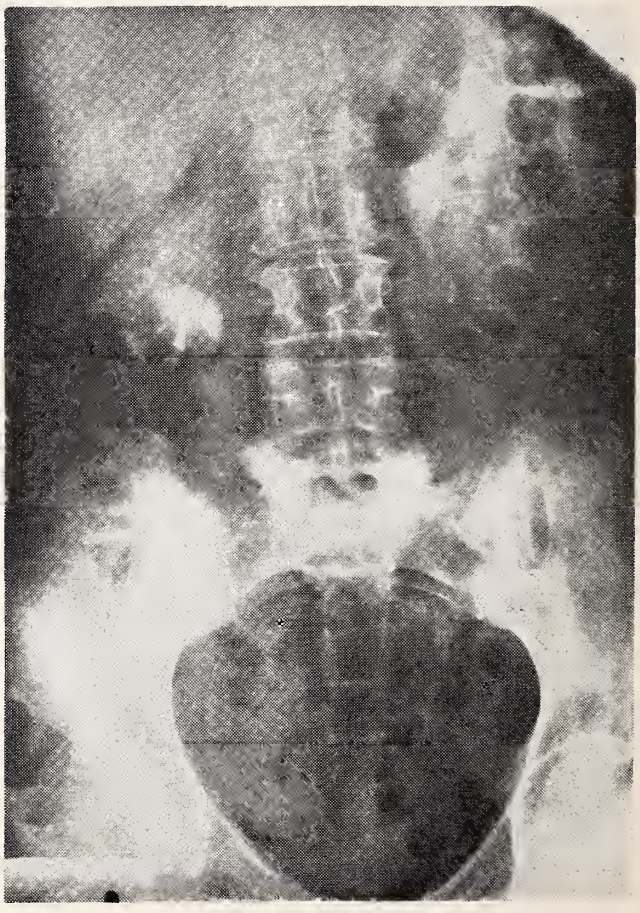


Fig. 5

Excretory urogram two months after surgery. Both pelves within nearly normal limits. This is a 10 min. I. V. P.

an ileal pouch due to the irritation produced in the colon. Excretory urograms (Fig. 4) were made two weeks after surgery and one sees only a moderate amount of ureterectasis and pyelectasis, more perhaps on the left than on the right. At the end of two months (Fig. 5) it can be seen that the pelves and ureters are normal. This patient empties the urinary contents of the bowel every three to four hours. She has gained back the weight that she lost during her convalescence; she feels fine and there is no evidence of recurrence. It is too early to make any predictions, but this seems to be an excellent method of handling this type of lesion.

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WHAT'S NEW IN DRUG RESEARCH? CHAOS, MOSTLY

One specific area, drug research, which has been affected by the new (FDA) clinical investigation regulations, is replete with examples of dismay and changed plans for drug producer and researcher. Ten U. S. pharmaceutical firms, several of them among the nation's major producers, so far report curtailment of research and development. One company claims that of 67 agents "out" for clinical trial as of July 1962, thirteen were discontinued on August 10 (the date the new investigational drug regulations were officially proposed), 37 more were discontinued from clinical evaluation by June 7 (when full compliance with the new regulations was required), and only 17 are being continued. Another firm acknowledges that 90 investigations under way in August 1962 have been discontinued, 20 of which were almost complete. Still another company has dropped 30 per cent of its projects though all were rated "good" to "enthusiastic" by research personnel. Other firms report a cutback in a number of projects despite increased research and development expenditures. Two midwestern companies are reported to have closed their research departments. Others are considering the initiation of more research abroad and still others are viewing with interest the possibility of mergers with stronger firms. — Austin Smith, M.D., President, Pharmaceutical Manufacturers Association, to Federal Bar Association meeting, Washington, D. C., June 27, 1963.

Surgical Treatment of Diverticulitis of the Colon

by

Patrick T. Phalen, M.D.

Diverticulitis of the colon becomes a surgical problem when complications develop. The author discusses 13 cases of diverticulitis, surgically treated, from the standpoint of diagnosis, early recognition of complications and indication for surgery. Preoperative antibiotic preparation of the bowel and one-stage resection of the colon is the treatment of choice whenever possible.

THIRTEEN patients were operated on for diverticulitis of the colon; there were six females and seven males. All the procedures were one-stage resections with end-to-end anastomosis. Six patients had anterior resections, six had left hemicolectomies and one patient had a right hemicolectomy. All had extra colonic complications of diverticulitis. There were no deaths and no major post-operative complications. There were no post-operative fistulas. Their ages ranged from 43 to 71 and the majority of these patients were in their sixties. The clinical findings of these thirteen patients were:

a. Abdominal pain.
b. Change in bowel habit.
c. Low back pain.
d. Blood in the stool (gross or occult).

The physical findings of these thirteen patients were that of:

a. Left-sided appendicitis.
b. Diffuse tenderness in the left side.
c. Evidence of local peritonitis.
d. Left lower quadrant tender palpable mass.
e. Occasional findings of colonic obstruction.
f. Bladder symptoms, such as gas bubbles and feces in the urine.

The preoperative use of sigmoidoscopy is very helpful to:

a. Exclude carcinoma in the differential diagnosis.
b. Determine the amount of inflammation, edema, and the spasm of the colon seen.
c. Assess the condition of the colon distal to the lesion.
d. Aid in the determination of the distal segment accepting a primary resection.

The barium enema is of invaluable aid in the diagnosis:

1. Definite diagnosis can be made in over sixty per cent of the cases with the use of the barium enema.
2. Aids in determining the amount of spasm in the involved segment.
3. Usually shows a saw-toothed mucosa.
4. There is usually a long segment involved secondary to the inflammatory process.
5. Barium enema from diverticulitis shows cone-shaped ends of the segment.
6. Uninvolved diverticuli, both proximal and distal to the inflammatory portion, can also be seen.
7. The amount of obstruction, spasm, or stenosis can be determined.

Presented at the Joint Meeting of the Phoenix-Tucson-Denver Surgical Societies, Scottsdale, Arizona, May 15, 1962.
461 West Catalina Drive, Phoenix, Arizona.

Indications for surgery are:

a. Complications of diverticulitis.
1. Acute perforations.
2. Fistula formation, either colo-cutaneous, colo-xesicle, rectovaginal or entero-colic.
3. Intestinal obstruction.
4. Pelvic abscess.
5. Massive hemorrhage.

b. Persistent disease with multiple recurrences of diverticulitis.

c. Any case in which there is a question of carcinoma.

The surgical treatment of the complications of diverticulitis, perforation, fistula, obstruction, abscess, massive hemmorhage, and simulated carcinoma are clearly surgical. Our major concern then is to determine which patients have persistent disease that will ultimately develop, the dangerous complications of diverticulitis, that neeessitate long term illness and multiple surgical procedures in order to effect a cure. The main signs that shape the decision for early resection for the otherwise well patient are:

1. Recurring attacks of abdominal pain and fever secondary to diverticulitis.
3. Episodes of subacute perforation and localized peritonitis.
4. Association of urinary symptoms.
5. A mass that does not resolve rapidly with antibiotic therapy.
6. Bleeding from the lower intestinal tract in the presence of diverticuli and in the absence of other lesions.

Helpful points to obtain successful results of the one-stage procedures.

1. Technically accurate anastomosis.
2. Avoid soiling.
3. An adequate antibiotie bowel preparation.
4. Proximal decompression, as with the Miller-Abbott tube into the small intestine preoperatively or an operative gastrostomy tube.
6. Late feeding.
7. Post-operative antibiotics.
8. Low residue diet.
9. Distal decompression, by dilitation of anal sphincter in operating room.

Antibiotic Bowel Preparation

The planned one-stage resection affords us the opportunity to effectively prepare the colon. There are several good methods in practice throughout the country and we have chosen a combination of Neomycin and Terramycin with a cleansing regime of Fleet's Phospho-Soda and enemas that has been quite satisfactory. Fig. 1.

BOWEL PREP

TWO DAYS BEFORE SURGERY:

Fleets drams 4 12 noon
Neomycin, gram 1 (2 tabs of .5 grams) 2 P.M.
Terramycin 250 mgm. (1 capsule 250 mg.) 2 P.M.
Fleets drams 2 4 P.M

DAY BEFORE SURGERY:

Fleets drams 2 8 A.M
Neomycin grams 1½ (3 tabs of .5 grams) at 6 A.M. – 12 noon – 6 P.M. – 10 P.M.
Terramycin 250 mgm (1 capsule 250 mgm.) at 6 A.M. – 12 noon
Paregoric drams 2 at 6 P.M. – 10 P.M.
Tap water enemas until clear returns 7 P.M.

MORNING – DAY OF SURGERY:

High tap water enema and aspirate with large catheter.

The value of an adequate antibiotie bowel preparation has been demonstrated frequently in the literature. Figures 3 and 4 show graphically the absence of edema and ulceration with an adequate bowel preparation and conversely the presence of marked edema, ulceration, and poor healing in the absence of an adequate antibiotic bowel preparation.

Surgical Procedures

The planned one-stage resection is becoming increasingly more prominent among surgical procedures designed for diverticulitis of the colon.

Although it can never completely supplant multiple-stage procedures, the one-stage procedure can greatly reduce the need for multiple-stage procedures if the patients who eventually will require operation are recognized earlier. Judd feels that probably 80 to 90 per cent of patients requiring surgery for diverticulitis could undergo one-stage resection with excellent results.

The multiple-stage operation will continue to occupy a prominent place in any selection of operations for diverculitis. A defunctioning colostomy may be lifesaving in an emergency and should always be carried out as a safety measure when doubt exists as to the lasting qualities of an anastomosis. Conversely in the modern era of surgery, the defunctioning colostomy should not be done as a routine concomitant with resection.

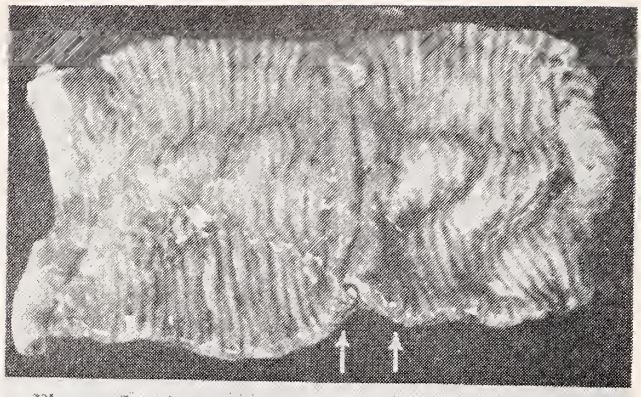


Fig. 3. Specimen P-29. Mucosal surface of the colon. Dog on ground meat diet and 1.0 gram per kilogram daily of sulfasuxidine in 6 divided doses for 12 days preoperatively. The same dietary and drug regimen postoperatively after 24 hours until the animal was sacrificed 3 days postoperatively. The arrows indicate the extent of the gross edema on either side of the line of anastomosis. There is clean healing at the line of suture.

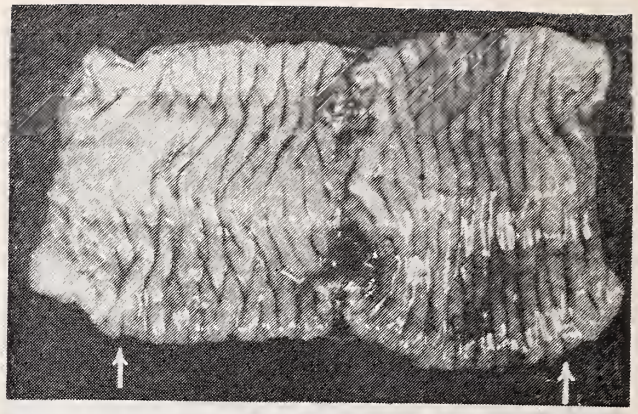


Fig. 4. Specimen P-35. Mucosal surface of the colon (control). Dog on ground meat for 12 days preoperatively and postoperatively after 24 hours. Animal sacrificed 3 days postoperatively. The arrows indicate the extent of the gross edema on either side of the line of anastomosis; a distance of 3 to 4 centimeters. There are 2 ulcers at the line of suture.

Certain post-operative complications and even the possibility of death inherent in the establishment of a colonic stoma are avoided in the one-stage resection. Furthermore, the colonic stoma in the absence of resection of the diseased area of bowel does not necessarily produce clinical improvement.

Summary

Thirteen cases of surgical treatment of diverticulitis of the colon have been presented. The ages range from 43 to 71, six females and seven males. Six of these operative procedures were anterior resections and six left hemicoloctomies and one right hemicoloctomy. There were no major post-operative complications and no deaths. A plea was made for earlier recognition and surgical treatment of these patients with persistent recurring disease in order that a planned one-stage procedure can be done, and that the dangerous extra colonic complications that necessitate multiple-stage procedures with a pending higher morbidity and mortality could be avoided.

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Hyman Lieber, M.D.

The Jejunal Hyperosmolic (Dumping) Syndrome A Preventable Physiologic Response

by

Hyman Lieber, M.D.

A survey of a not uncommon problem. If only all cases would so completely respond.

"DUMPING" is an unfortunate misnomer for an entirely preventable symptom which may follow operations for peptic ulcer. Certain misconceptions concerning pathogenesis of the phenomenon persist. These, together with common postoperative dietetic errors, are responsible for the continued existence of this distressing complaint.

The clinical picture of the jejunal hyperosmolic syndrome is well defined. About ten minutes after a meal, the patient feels weak and tired. He becomes pale, feels warm and perspires. His pulse speeds up and palpitation appears. His stomach feels full. There is an urgent desire to lie down. Eructation is common and nausea may be noted. Vomiting and diarrhea occur occasionally.

These symptoms are accompanied by extensive physiological changes. The plasma volume decreases. There is a fall in serum potassium and phosphate. Cardiac output increases and the electro-cardiogram shows changes attributable to an electrolyte shift. At the same time there is an increase in digital and renal blood flow, an increase in urinary uric acid excretion, and a rise in circulating eosinophiles.

Other syndromes may follow gastric surgery for peptic ulcer. It is important that they be differentiated from the symptom complex we have just described. Obstruction of the gastroenterostomy stoma may be due to kinking or edema. Adhesions may cause obstruction of the afferent or efferent loop. Gastrojejunal ulcer causes its own chain of symptoms. The small pouch syndrome, the rare malabsorption syndromes, the macrocytic and microcytic anemias and the poorly understood late post-prandial hypoglycemia can be identified and differentiated from the jejunal hyperosmolic syndrome which is the subject of the present discussion.

Rydygier performed the first gastro-enterostomy for peptic ulcer in 1884. For several years thereafter the immediate post-operative complications were so alarming that the late symptoms

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From the Veterans Administration Hospital, Phoenix 12, Arizona.

were disregarded. But as gastroenterostomy became more popular, the symptoms of the hyperosmolic syndrome became apparent. The first reports were in the French and German literature by 1908. Hertz published the first description in the English literature in 1913.[1]

Moynihan did gastroenterostomies for ulcer at the turn of the century. A foundry laborer, pleased with the results of a posterior gastroenterostomy performed in January, 1904, anticipated the current program and achieved the first publication on prophylaxis when he wrote Moynihan in January 26, 1908: "I have no trouble whatever with my stomach. I am eating rough food but keep off pastry and sweet stuff."[2]

Dr. E. Wyllys Andrews introduced the term "dumping stomach" at a clinic in Chicago in 1920.[3] His young male patient had "his stomach raised" and gastrojejunostomy made three years before the current hospitalization. The diagnosis was "ulcers" but no x-ray examination or gastric analysis preceded the operation. Soon after the gastrojejunostomy the patient developed hypogastric and left epigastric pain and explosive bowel movements of mucus. A year later he was treated for mucous colitis with improvement. His symptoms recurred nineteen months after and the soreness in his abdomen increased. On drinking liquids he could hear them rush down through his bowels. He began to develop pain in the left epigastrium, burning in character, and at times rhythmic. The pain had no relation to the taking of food and grew gradually worse. He developed a soreness in the lower abdomen. "His appetite is good but he is afraid to eat, he has lost more than twenty pounds in weight."

THE blood count was normal. Gastric analysis showed 40° free and 57° total acids. Fluroscopy revealed "the abrupt disappearance of the barium into the bowel. It apparently did not lodge in the stomach at all, but passed instantly from stomach into the intestines." Barium enema revealed "binding adhesions in the descending colon." At operation "the bowel mucosa was fiery-red and inflammed." It is obvious that this patient's symptoms were entirely different from the syndrome which is the subject of this paper.

Mix and others continued to use the term "dumping." Eusterman and Balfour[4] attributed the name "dumping" to Mix. They noted the fact that the original description did not include the following symptoms, but by 1936 they were applying the term to "intestinal uneasiness, nausea, vomiting, epigastric distress, bloating, diarrhea, sometimes sinking feeling, sweating and prostration." Thus, within fifteen years, "dumping" was applied to a symptom complex quite different from that described by the originator. Since that time the word has been adopted in the German, French, Spanish, Italian, Dutch, Finnish and Portuguese literature and is conventionally applied to symptoms caused by the presence of hyperosmolic material in the proximal jejunum.

"Dumping" was first reported after gastroenterostomy. As subtotal gastrectomy, antrectomy and pyloroplasty became popular, it was noted that the syndrome occurred whenever the pyloric function was lost or by-passed. Ingenious techniques of gastro-intestinal anastomosis were devised to prevent the complaint, but with no consistent success. It became apparent that size of stoma, extent of resection, the segment of stomach removed, the type of anastomosis and the loss of gastric storage function did not in themselves cause the symptoms.

The fundamental physiologic basis for this sometimes explosive jejunal response to hyperosmolic solutions was established by Abbott.[5] He devised a long tube with two balloons which could isolate segments of small intestine in normal individuals and in patients. The intestine reacted strongly when hyperosmolic solutions were introduced. The experimental solutions included proteins and electrolytes, but glucose was the most frequently used. As hypertonic glucose entered the intestine, isotonicity was promptly attained by a shift of electrolyte contents, rapid inflow of hypotonic fluid and absorption of glucose. There was propulsive persistalsis which varied in intensity with the hypertonicity of the solution.

IN 1947 Machella[6] demonstrated that "dumping symptoms" could uniformly be produced in people with intact stomachs as well as after subtotal gastrectomy. When he instilled hypertonic solutions of carbohydrates, proteins and salts into the proximal jejunum the experimental group developed the same secondary changes in blood volume and blood electrolytes that occur in the clinical condition.

It is abundantly clear that the precipitating cause for the syndrome is the access of hypertonic solutions to the jejunal mucosa. In the normal individual, the pylorus acts to prevent

access to such hypertonic chyme to the duodenum. If this pyloric function is prevented, whether by duodenal tube in the normal individual, or by pyloroplasty, gastroenterostomy or gastric resection in the ulcer patient, we may expect the syndrome as a physiologic response each time hyperosmolic chyme reaches the jejunal mucosa. The effectiveness of diet in the management of clinical cases of "dumping" is added evidence for this concept of the pathogenesis.

MACHELLA showed that, to produce symptoms, the material reaching the jejunum must: 1. contain ingredients of high osmotic pressure (over 300 milliosmoles). These are usually simple sugars, but may be salt or protein solutions; 2. be dissolved in sufficient fluid to yield a solution hypertonic enough to draw additional fluid from the blood stream into the gut. He also showed that jejunal distention alone could produce the symptoms. Alvarez showed that ice cold water and some allergens can cause the syndrome. Robinson and others have demonstrated that ice cream, milk and sweetened milk drinks are active offenders.

Despite the fact that the jejunal hyperosmolic syndrome is merely a physiologic response to hypertonic solutions, the reported incidence of the conditions ranges from 1% to 100% of cases.[7] About 15% of post gastrectomy, post gastroenterostomy and post pyloroplasty patients have symptoms serious enough to require treatment. These patients improve promptly when a judicious diet is begun.

The principles of dietary management of the syndrome are so well established and so effective that it is surprising to find a widespread failure to apply these same principles in the first few postoperative days. When operation destroys or by-passes the pyloric valve, the patient should not receive hyperosmolic foods. The diet must therefore omit simple sugars, easily hydrolyzed starches and proteins, large volumes, ice cold foods and sweetened milk mixtures. Lewis and Zollinger,[8] and others, have introduced such a regimen with excellent results.

In an attempt to learn why this easily avoided syndrome continues to plague patients after gastric surgery, a continuing review of post gastrectomy dietary practices in hospitals in the United States has been conducted.[9] It was felt that those hospitals offering an approved internship program in dietetics were representative of the best available care and that the reported practices were those being taught in the training of the new generation of dietitians.

ADEQUATE responses for analysis of the diets were received from forty hospitals. Of these, 20% reported that they had **no** postoperative dietary program devised for gastric surgery; 30% of the reporting hospitals had **excellent** dietary programs, which met the theoretic requirements for a prophylactic regimen. An additional 10% of hospitals obviously recognized the principles of an adequate diet but the diet cards showed that poor practices reduced the efficiency of the planned program. Finally, 40% of the reported hospitals had post gastrectomy diets which were not only unsatisfactory but almost appeared to be devised to precipitate the jejunal syndromes.

More recent followup showed that there has been some improvement, but the diets offered patients immediately after gastric surgery in 50% of our dietetic teaching hospitals continue to be theoretically unsatisfactory. In many instances hospitals have well devised programs for the dietary treatment of the patient with a well developed hyperosmolic syndrome, but make no attempt to prevent the syndrome by applying the same principles in the first few postoperative days.

This remarkable divergence between what is known about the etiology of the hyperosmolic syndrome and what is actually done for the patient appears to be due to a series of "natural errors."

The erroneous etiology implied by the name "dumping" has in many cases distracted attention from the importance of dietary management. Even in hospitals where the term "dumping" is not used, there are recurring reasons for the patients' continuing symptoms.

The first manifestations of the jejunal hyperosmolic syndrome are often overlooked in the immediate postoperative period. The patient expects a loss of strength and is not surprised to find that eating his first few meals results in weakness, palpitation and possibly some abdominal distress. He has an urge to lie down and soon feels better. This convinces him that all this is part of the postoperative weakness. The symptoms are not brought to the surgeon's attention until weeks later, when the syndrome is recognized and treatment is begun.

ANOTHER "natural error" is use of the bland ulcer regimen as the basis for the post-surgical diet. The ulcer patient who comes to surgery

has had years of indoctrination in bland ulcer diets. The doctor, patient, nurse, dietitian and family have been taught to associate such foods as milk, cereal, custard, eggnog, chocolate milk, malted milk and ice cream with the care of the ulcer patient. It is not surprising that many hospital diets return to the use of these foods in the postoperative period, and that patients themselves resume the use of these foods when they have new post-prandial symptoms.

It has been traditional to give "easily assimilated foods" to postoperative patients. Foods are cooked, malted and otherwise hydrolyzed. The smaller the resulting molecule, the greater is its osmolic effect. Machella demonstrated, for example, that eating 50 grams of crude caseine caused only minimal symptoms, while the same amount of hydrolyzed caseine ingested in the same amount of water caused severe "dumping" symptoms.

Nurses, dietitians, aides, volunteers and families are assiduous in providing "extra nourishments" for the postoperative patient. These customarily consist of sweetened and often malted milk mixtures, sweetened fruit juices, custards, puddings and desserts. Most of these mixtures can be demonstrated to show an osmolarity over 300 milliosmoles when they are homogenized in a blending machine and tested in a simple osmometer. It seems strange to find puddings and desserts made of cornstarch included in some otherwise excellent modern postgastrectomy diets. It has repeatedly been demonstrated that 100 gms of cornstarch administered after gastrectomy will cause the same symptoms, electrographic and blood volume changes as 150 cc of 50% glucose, whereas the same amount of carbohydrate in the form of bread causes no complaints.

The hospital penchant for sanitation and refrigeration contributes to the patients' difficulties. Despite what is known about cold as a stimulus for the jejunal syndrome it is almost impossible consistently to provide milk at room temperature for postoperative patients without meticulous supervision and repeated indoctrination. Similarly, intensive training and supervision are required to prevent appearance of sugar on the patient's tray. Nothing is more reasonable to the kitchen worker than to add a packet or bowl of sugar to a tray containing cereal and milk. Nothing is more natural to the patient than to accept what is on his tray.

FINALLY, many patients continue to have the syndrome because of inadequate training. Patients have difficulty with the negative program of "avoid sugers". They do better with positive instruction to use synthetic sweeteners. These have neither the food value nor the osmolic effect of sugar, honey, preserves and other natural sweeteners. The patient who is trained to use synthetic sweeteners has less craving for natural sugars.

The diet used at the Veterans Administration Hosital in Phoenix, Arizona is summarized in Table I. It is neither original nor distinctive, but it does prevent the hyperosmolic syndrome. It is difficult to emphasize strongly enough that the listed foods are not in themselves important.

Training the staff, the patient and the family to avoid hyperosmolic foods is the crux of the dietary problem. There is an overwhelming tendency to introduce well intentioned additions to the diet. It must be learned that, for prophylaxis of the jejunal hyperosmolic syndrome, omission of precipitating foods is far more important than variety.

ONCE the patient has been adequately trained in his prophylactic diet and is symptom free, he may be encouraged to discover which additional foods his proximal jejunum will tolerate with the passage of time.

Summary

The jejunal hyperosmolic syndrome is a physiologic response to the introduction of certain foods in the proximal jejunum. The synonym "dumping syndrome" is erroneous and interferes with the simple prophylactic approach to the elimination of the syndrome.

The jejunal hyperosmolic syndrome is preventable.

A recurring review of postoperative dietary practices in American hospitals with approved internships in dietetics indicates a decreasing but still widespread failure to apply the known facts about the hyperosmolarity syndrome to the management of the post-operative patient. Several "natural errors" which contribute to this failure are identified.

POST GASTRECTOMY DIET

Learn to Avoid Sweets, Cold Drinks and Large Volumes.

Use Only Synthetic Sweetening Colutions

Postoperative

Day No. 1 Sips of water.
NOT ICED

Day No. 2 Cooked cereal, cream and milk t.i.d.
Milk (60 - 75cc) t.i.d.
DO NOT FORCE
ROOM TEMPERATURE
NO SUGAR
SYNTHETIC SWEETENER ON TRAY

Day No. 3 Add choice of boiled egg, soft toast, boiled potato, crackers, cottage cheese, steamed rice, butter
NO SUGAR
SYNTHETIC SWEETENER ON TRAY

Day No. 4 Add choice of bread, macaroni foods and peanut butter
NO SUGAR
SYNTHETIC SWEETENER ON TRAY

Day No. 5 Add tender poultry or meat
NO SUGAR
SYNTHETIC SWEETENER ON TRAY

Day No. 6 Select from regular hospital diet.
NOT TOO COLD. NOT TO SWEET.
SMALL MEALS. LIMIT FLUIDS.
NO: Sweets, malts, eggnog, pudding, custard or ice cream
USE ARTIFICIAL SWEETENER.

An increased awareness of the dietary needs of the patient after subtotal gastrectomy, pyloroplasty, gastroenterostomy or antrectomy will markedly decrease the distress and weight loss so often reported after operation. It must be recognized that this is a negative program which emphasizes items to avoid. It is much more difficult to teach than a positive program which prescribes a given list. Training patients in the use of synthetic sweeteners as sugar substitutes contributes materially to success of the program.

A simple diet sheet is presented as a sample. Much more important than the listed items is the series of precautions against foods which can precipitate the jejunal hyperosmolic syndrome.

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DRUG EVALUATION BY THE PRACTITIONER

The practicing physician is an important component in drug evaluation. He should not be excluded. Many excellent controlled studies have been performed by well-qualified physicians, who are not members of a medical school or a research facility with a hospital environment. Since the majority of patients treated by a physician are seen in private offices and the majority of drugs introduced into medicine are intended for these patients, it is essential that the evaluation include the practicing physician. Too often the results obtained in a limited group of patients, by competent investigators in scientific institutions, cannot be carried over to the treatment of patients in actual field trials. The so-called controlled studies are occasionally so limited in scope, with removal of random variables, that the final conclusions do not reflect what can be expected when the drug is used in actual practice. — Robert C. Batterman to Western Pharmacology Society, San Francisco, January 28, 1963.

The Ulcerogenic Spouse

by

George L. Hoffmann, M.D., F.A.C.S.

Phillip M. Englund, M.D.

That the course of peptic ulcer is markedly influenced by emotional factors is well recognized. Marital discord is a frequent source of a disturbed emotional state. In this paper the authors discuss several personality types which adversely influence the course of peptic ulcer in their spouses.

SEVERAL months ago, the authors were discussing some of the rather bizarre behavior of the husbands and wives of their ulcer patients. Out of this discussion, have been formulated a few concepts which may have some bearing on the treatment of peptic disease. None of these observations will be particularly startling, as dramatic situations between husbands and wives of ulcer patients are exceedingly common. Nonetheless, a few remarks may serve to categorize our thinking and facilitate our management of these patients. Certainly these principles do not apply in all cases; several of our best physician-friends came from ulcer-bearing families and we certainly have no desire to alienate these good people.

We have found there is often a personality characteristic in the spouse of the ulcer patient which may serve as a diagnostic sign or postoperative complication. On occasion, the personality of the patient's mate might even serve as a surgical indication, just as much as intractability, dietary indiscretion, job habits, etc.

These people fall into two main types: (1) the Oversolicitous or flutterers and (2) the "Hostiles".

The flutterers vary from being passive or "hypotrophic" to the overactive or "hypertrophic." Not too long ago, we were summoned to the hospital about 2:00 in the morning to see a patient with a perforated duodenal ulcer. We found the family doctor there attending a thin gentleman who certainly appeared moribund. As we approached, the physician said, "not here, the patient's in the ward. This is just the husband." While we made preparations for surgery, our colleague finally succeeded in restoring this gentleman back to consciousness, at which time he promptly fainted.

On later visits in the office, he remained tensely in the background whispering quietly any symptoms which the patient may have overlooked.

The active "Flutterer," or hypertrophic oversolicitous type of spouse is much more obvious. This is the untamed shrew who brings her dispeptic husband for consultation and sits down

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24 North Hibbert Street, Mesa, Arizona

between him and the physician. When the doctor asks regarding the symptoms, she is bound to start off by saying . . .

"He has terrible pain — he hasn't eaten ANYTHING for ten years — how much do you charge?"

or

"Do many people die when you operate on them? my neighbor certainly suffered when his belly broke open — I assume my insurance will cover everything?"

or

"What kind of operation do you do — I know vagotomy is no good — are you (old) (still steady) enough to cut out a stomach?"

This hot-water bottle-bearer has spent many years preparing special diets and is certain to see that they are consumed in proper fashion even if she has to spoon them in herself. Her patient has never missed a medication and as a rule she is quite well read on the latest complexities of surgical and medical treatment of peptic disease. She is especially aware of all the complications that may occur and seeks to prevent them. Whenever we think of the active "flutterer", we recall one gentleman who, when informed that the usual surgical fee included several months of postoperative care, insisted on bringing his wife into the office every other day for three months. Those of you who are wondering why we indulged the family to this extent, will find a quite ready answer — he mentioned litigation "if anything should happen."

The unpleasant word "litigation", brings to mind the second main type of ulcerogenic spouse; Namely, the "Hostiles". We certainly know how these people act when things don't go quite right. Their behavior varies in degrees, and of course, may overlap into the "fluttering" group which we mentioned previously. Their actions may range from dramatic tantrums in the hospital to outbursts of physical hostility in the business office, or upon the ward — (Are you gonna let her die?") They may suggest that perhaps you'd better get a consultation with a "real" doctor now that the temperature is up to 99. If things don't go well, she moans tearfully, "Why have you done this to him?"

ANOTHER particularly effective ploy is to congratulate the surgeon on the successful outcome of a gastric resection and then quietly turn to the office aide and ask for two copies of your bill — "one for the attorney and one for the grievance committee."

As you may see from these, we are recalling the basic premise that most surgeons enunciate when a colleague inquires as to his own gastric physiology: "There are some who give them and some who get them, and I give them." Now, it is these litiginous folks who fall into that latter category (perhaps on the basis that "it is better to give than to receive.")

The final and most frightening type of ulcerogenic spouse is the passively hostile one. These folks are in some ways a blessing to have in a family when things are going badly postoperatively, but nonetheless they can often ruffle the composure of even the most worldly of surgeons. They may range in behavior from the husband whom you just never get to meet during the wife's entire surgical experience, to the wife of a young man who was hemorrhaging briskly from a duodenal ulcer. We decided that he should be operated as an emergency, and sat down with his wife to discuss the situation in terms of mortality rate, etc. She quietly ended up reassuring us by saying . . .

"Don't worry, Doc, just do what you can, I'm going home and will call tomorrow and see if he lived through it."

This woman failed in having her husband killed off by our tender ministrations, but did manage to divorce him a few months later.

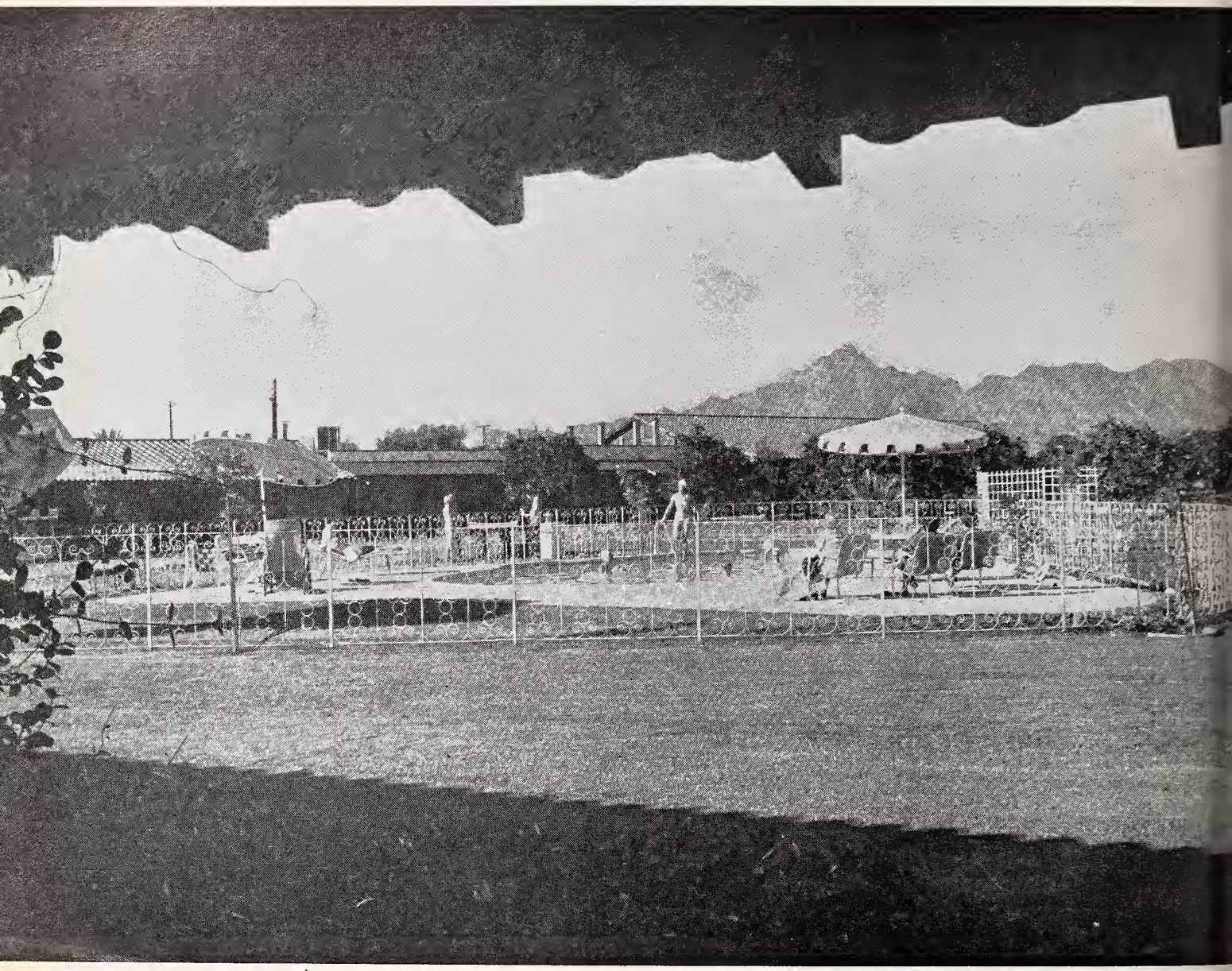
In many ways these remarks may not contain any new thoughts but some of the principles here may serve to alert us to some therapeutic pitfalls and improve the results of our treatment, thus enabling us to stay "one up" on some of our most difficult families with whom we must cope.

In summary, we think it well to remember the advice of a Veterinarian who said: "Sometimes it pays to look at the other end of the leash."

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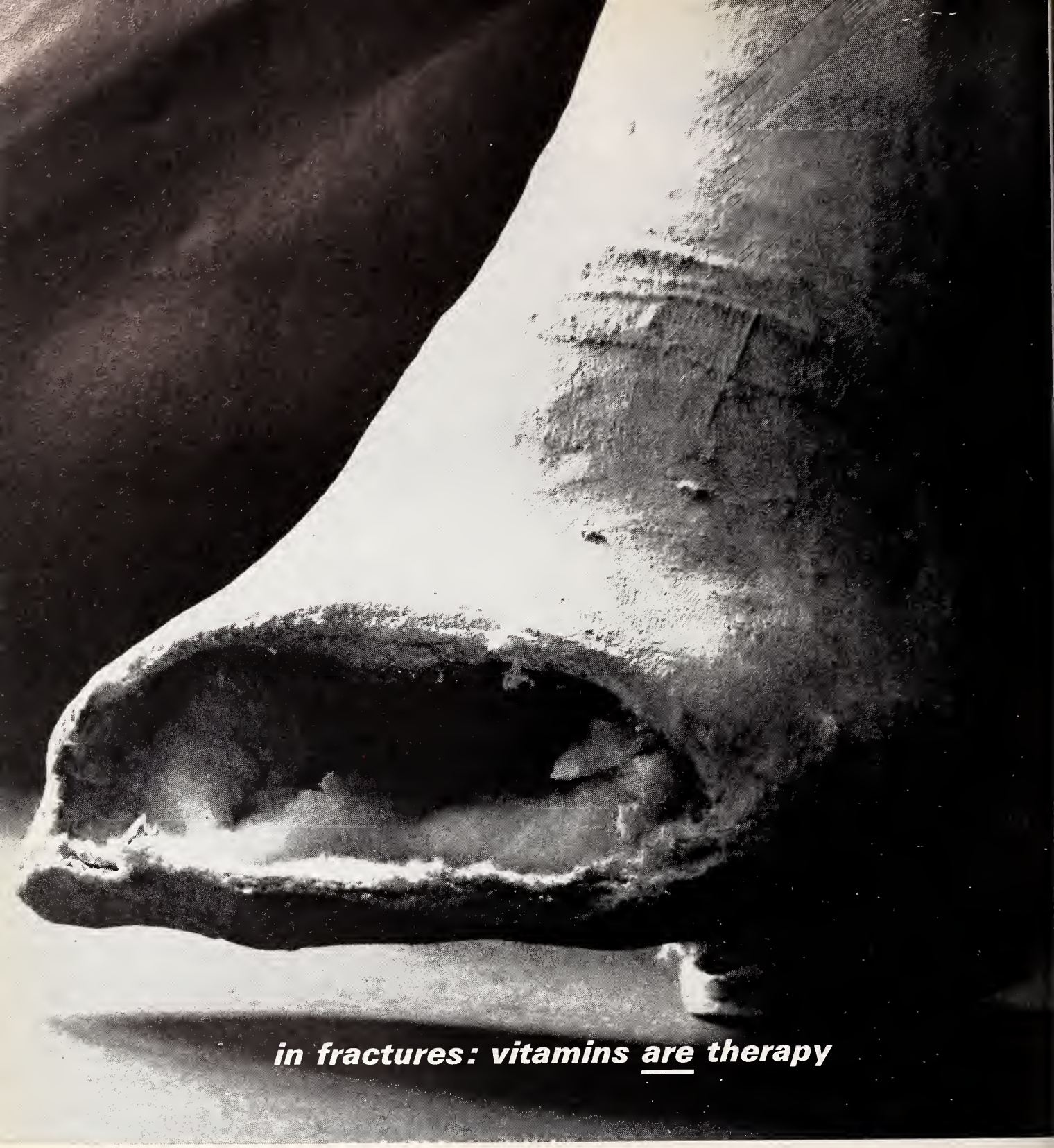
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Unsurpassed Tolerance: Less than 3 per cent of patients develop side effects with TRANCOPAL (chlormezanone-Winthrop), such as occasional drowsiness, dizziness, flushing, nausea, depression, weakness and drug rash. If severe, medication should be discontinued. In most patients, however, side effects are minor and do not necessitate interruption of treatment. There are no known contraindications.

Available: 200 mg. Caplets® (green colored, scored). 100 mg. Caplets (peach colored, scored), each in bottles of 100.

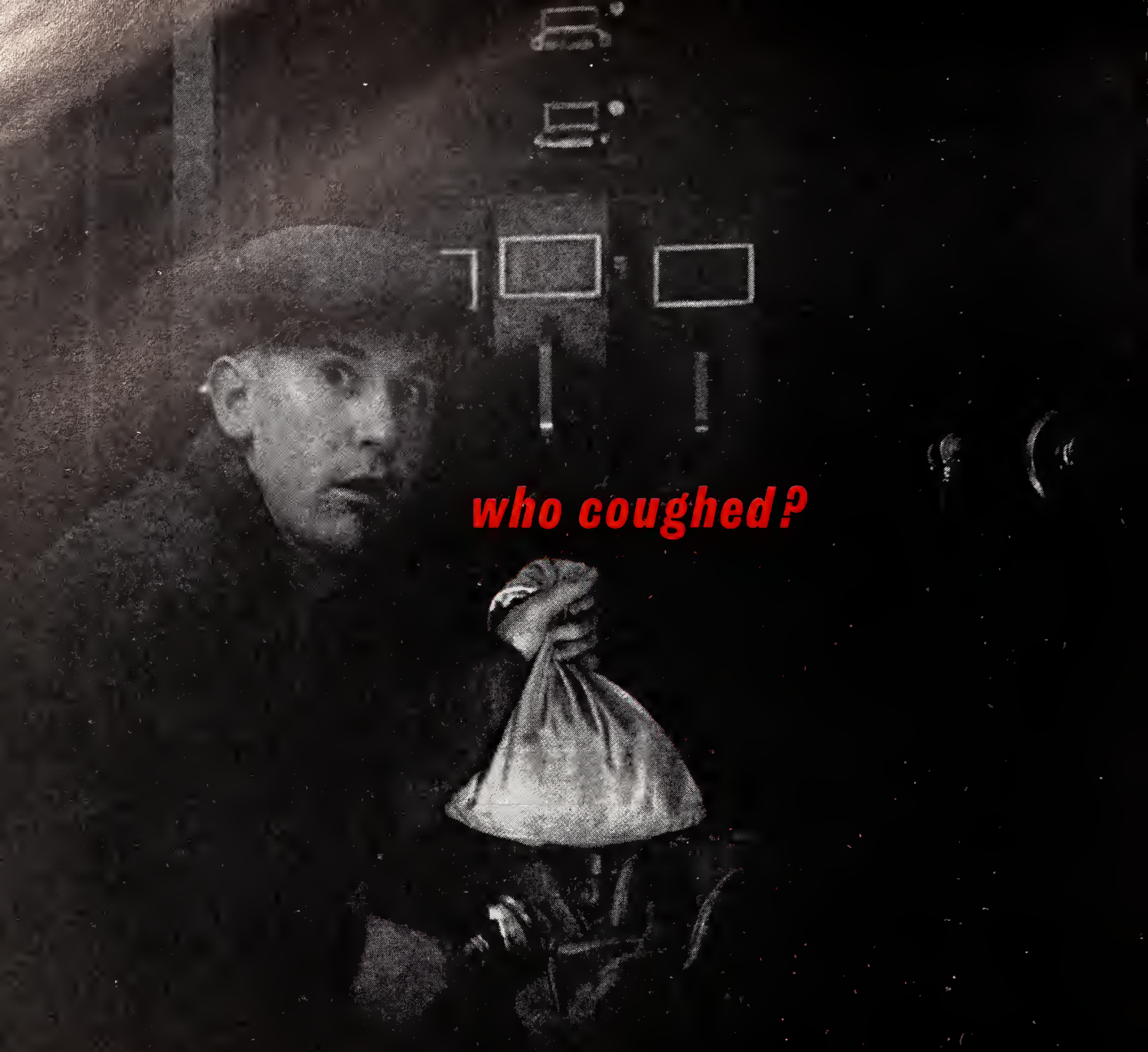
Dosage: Adults, 1 Caplet (200 mg.) three or four times daily; in some patients 100 mg. three or four times daily suffices. Children (5 to 12 years), from 50 to 100 mg. three or four times daily.

Reference: 1. A.M.A. Council on Drugs: J.A.M.A. 183:469 (Feb. 9) 1963.

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WINTHROP LABORATORIES
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who coughed?

for fast and long-lasting cough control

HYCOMINE® SYRUP

Each teaspoonful (5 cc.) contains:

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Hydrocodone bitartrate . . 5 mg.	
(Warning: May be habit-forming)	6.5 mg.
Homatropine methylbromide 1.5 mg.	
Pyrilamine maleate	12.5 mg.
Phenylephrine hydrochloride	10 mg.
Ammonium chloride	60 mg.
Sodium citrate	85 mg.

in a highly palatable, cherry-flavored vehicle (methylparaben 0.13% and propylparaben 0.02% as preservatives)

INDICATIONS: For both productive and nonproductive cough. For relief of symptoms in tracheitis, bronchitis, pneumonia, pharyngitis, bronchial asthma, pertussis, and allied conditions; cough associated with allergy; in general, whenever cough medication is indicated.

DOSAGE: Average adult dose—1 teaspoonful after meals and at bedtime with food. Children 6 to 12 years, ½ teaspoonful; 3 to 6 years, ¼ teaspoonful; 1 to 3 years, 10 drops; 6 months to 1 year, 5 drops; after meals and at bedtime. On oral Rx where state laws permit. U.S. Pat. 2,630,400.

CAUTION: Should be used with caution in patients with known idiosyncrasies to phenylephrine HCl and in patients with moderate or severe hypertension, hyperthyroidism or advanced arteriosclerosis. In these patients use should not exceed three days. Hycomine Syrup is generally well tolerated but in some patients drowsiness, dizziness or nausea may occur. May be habit-forming.

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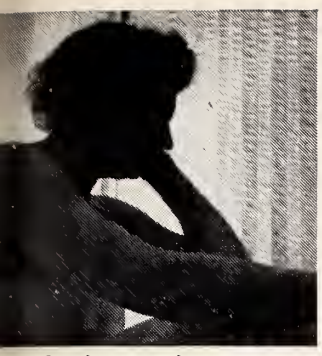
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USUAL ADULT DOSAGE: 1 or 2 400 mg. tablets t.i.d.

SUPPLIED: 400 mg. scored tablets, 200 mg. coated tablets.

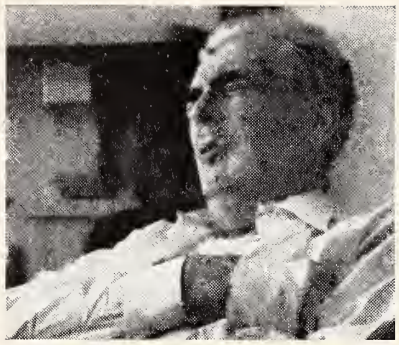
CM-569A



The insomniac



The tense, nervous patient



The heart-disease patient



The surgical patient



ıe girl with dermatosis



Tension headache



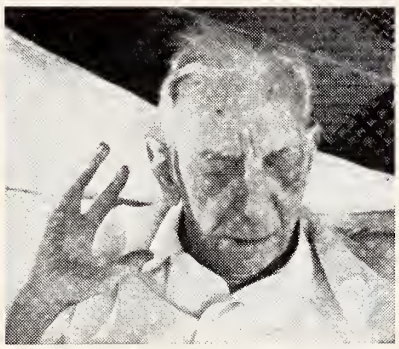
The woman in menopause



Anxious depression



Premenstrual tension



The agitated senile patient



The alcoholic



The problem child

the original brand of
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The G.I. patient

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Because it has up to 3½ times the *in vitro* antibacterial activity[1]...combined with lower rate of decay in serum, slower renal clearance...a favorable depot effect, resulting from protein binding...all providing rapid, higher and sustained *in vivo* activity with as much as 2 days' extra activity.

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DEMETHYLCHLORTETRACYCLINE HCl

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William B. Steen, M.D.

Thanksgiving will be with us this month. It is a time to be thankful for the many blessings that we have received as an individual and as a nation during this past year. It would be much better to be thankful and grateful every day of the year.

Dr. Annis spent Tuesday, October 22 and Wednesday, October 23 with us in Arizona. It was a full schedule, enthusiastically received in Tucson and Phoenix by a cross section of old and young, all eager to receive his message of a better America and how to keep it that way. We were all happy to have Dr. Annis with us.

ARMPAC

Operations Hometown, our Legislative Action and Public Relations activity, continues as our most active grass roots level program. It is our answer to HR 3920, the current King-Anderson Bill. We have been in high gear since the spring, continued through the summer, and now we must accelerate our pace this fall. It is just as dangerous now as it was in the spring — probably more so, because of the long waiting period. Our enemy knows that it can be a war of nerves and, unless we keep up our activity, the odds are against us. It has been said that nothing will be done with this bill until next year. This fact offers us every reason to continue on our guard and not to slow our activity in any way.

Mr. Wilbur Mills, Chairman of the House Ways and Means Committee, in September told the House Rules Committee that there would be no House action this year on HR 3920, the current King-Anderson Bill. This statement, however, does not preclude hearings on this bill sometime during the fall. It is anticipated that they will be held, possibly toward the beginning of November. We must be ready for it. It is still a waiting game. We must keep our County and District organizations strong and on the alert. We must continue the climate *against* the King-Anderson Bill, and make our representatives in Congress realize that the people back home mean they are opposed to this bill and other socialistic programs, and expect their representatives to oppose HR 3920.

Please keep materials distributed, keep the flood of letters going to Washington, give information through the Speakers' Bureau, newspaper, radio and television. Use, to our best advantage, our allies and our Congressional contacts.

Operation Hometown has made an excellent start. Let's stay on the ball and finish the job.

Someone has raised the question, "Is the welfare state obsolete?" We know that it is.

Fall means taking up the slack from summer, back to school, football and intensified activity for the State Medical Association. This is a period of committee activity.

The Scientific Assembly Committee has had a number of meetings, and are developing an excellent, well rounded and interesting program for the annual meeting at the San Carlos Hotel in Chandler, Arizona on Wednesday, April 28 to Saturday, May 2. The Auxiliary, in their newsletter commented, "Didn't we have a gay time at the State Convention in Tucson this Year." I am sure that the 1964 convention is going to be a very successful meeting, and an opportunity to have another gay time. This is the time for action through the County Societies, the individual doctor and the auxiliary.

On To Chandler In '64

Our Auxiliary is helping to make this meeting a success, especially helping to get advance registrations. Further, the Auxiliary is to be complimented on the latest edition of their News.

A parting word. Let's keep our Political Action activity, as represented by ARMPAC, definitely separate from our State organizations. That means our State Association and our State Auxiliary. All ARMPAC activity, in every phase, and especially in the collection of money and dues, should be the function solely of ARMPAC. We cannot mix political activity with our regular medical organizations.

William B. Steen, M.D.

President

An Ethical Professional Service for Your Patients Founded 1936



NEW BUDGET PLAN FOLDERS AVAILABLE:

Doctor, we've revised our Budget Plan for Health folders. Printed in an attractive blue with black on white textured paper, these new folders are modern yet dignified and will have greater appeal to your patients. The copy inside is almost the same copy as the former folders contained, thus maintaining their dignified and ethical approach in explaining how the Budget Plan for Health works.

We always try to keep your Budget Plan folders filled at all times but if we should miss you, we'd appreciate your calling us. If you would like a supply of the new Budget Plan for Health folders, just write or call your nearest M&D office and they will be sent to you at once WITHOUT COST. We know you'll like the new folders, too!

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Important news in cardiac therapy

Two new clinical reports document successful long-term treatment of ischemic heart disease with Persantin®, brand of dipyridamole

See next 3 pages

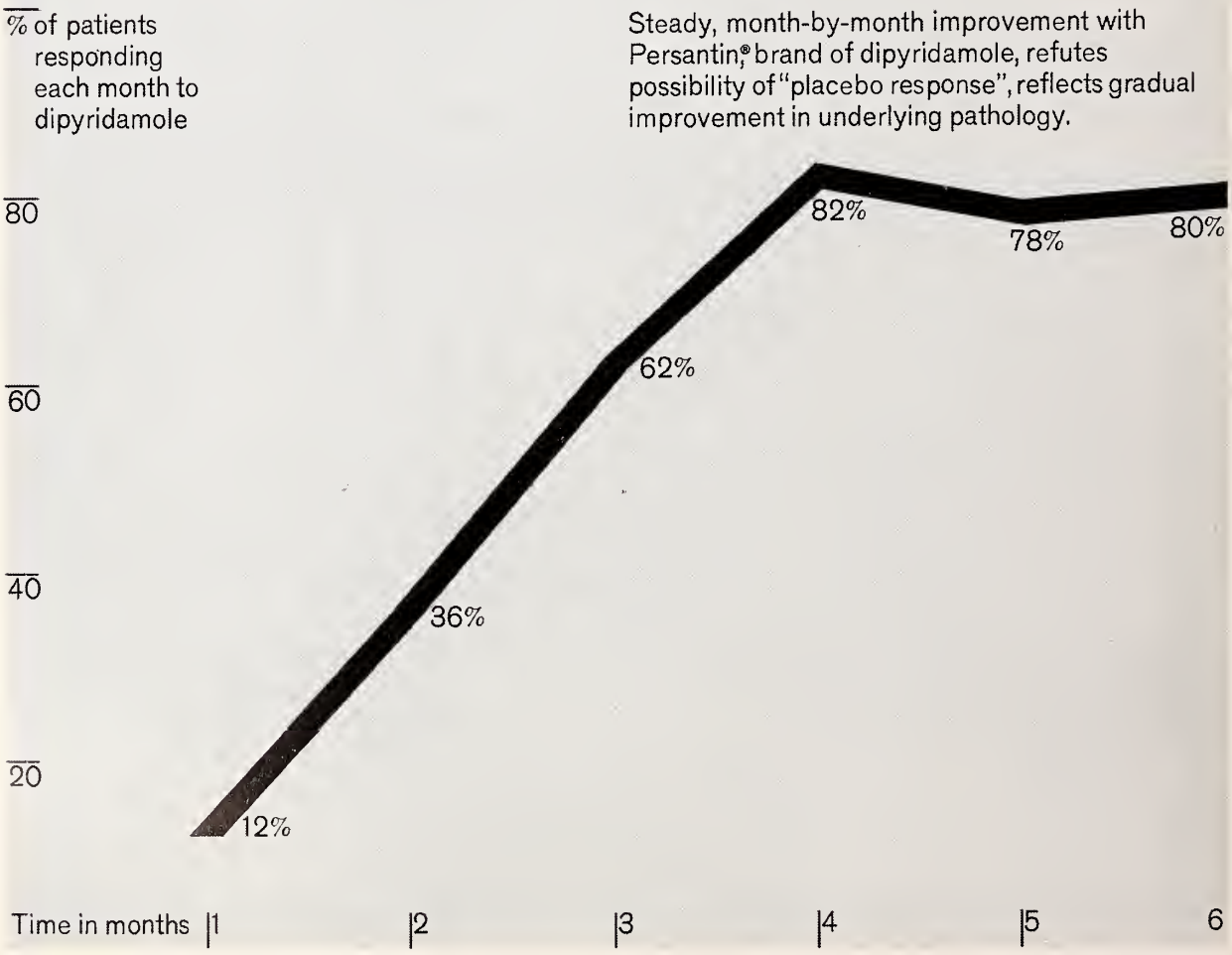
Study 1.
Griep,A.H.: Long-term Therapy of Ischemic Heart Disease With Oral Dipyridamole:
A Report of Fifty Cases. Angiology 14:484, 1963.

Persantin,® brand of dipyridamole, 25 mg. t.i.d. or q.i.d.,was administered continuously for 6 months to 50 patients with well authenticated ischemic heart disease with angina pectoris and ECG abnormalities. Results were evaluated on a monthly basis.

Persantin® brand of dipyridamole

"...long-term oral therapy with dipyridamole was of benefit in 80 per cent of the patients...

"relief [of angina] came slowly and was usually maximal after three to six months of continuous treatment"



Steady, month-by-month improvement with Persantin,® brand of dipyridamole, refutes possibility of "placebo response", reflects gradual improvement in underlying pathology.

Study 2.
Wirecki,M.: Dipyridamole (Persantin®): Evaluation of Long-Term Therapy in Angina Pectoris. Current Therapeutic Research 5:472, 1963.

In 40 ambulatory patients with myocardial ischemia, angina pectoris, and abnormal ECG findings, Persantin,® brand of dipyridamole, 25 mg. t.i.d., was administered continuously for 3 months.

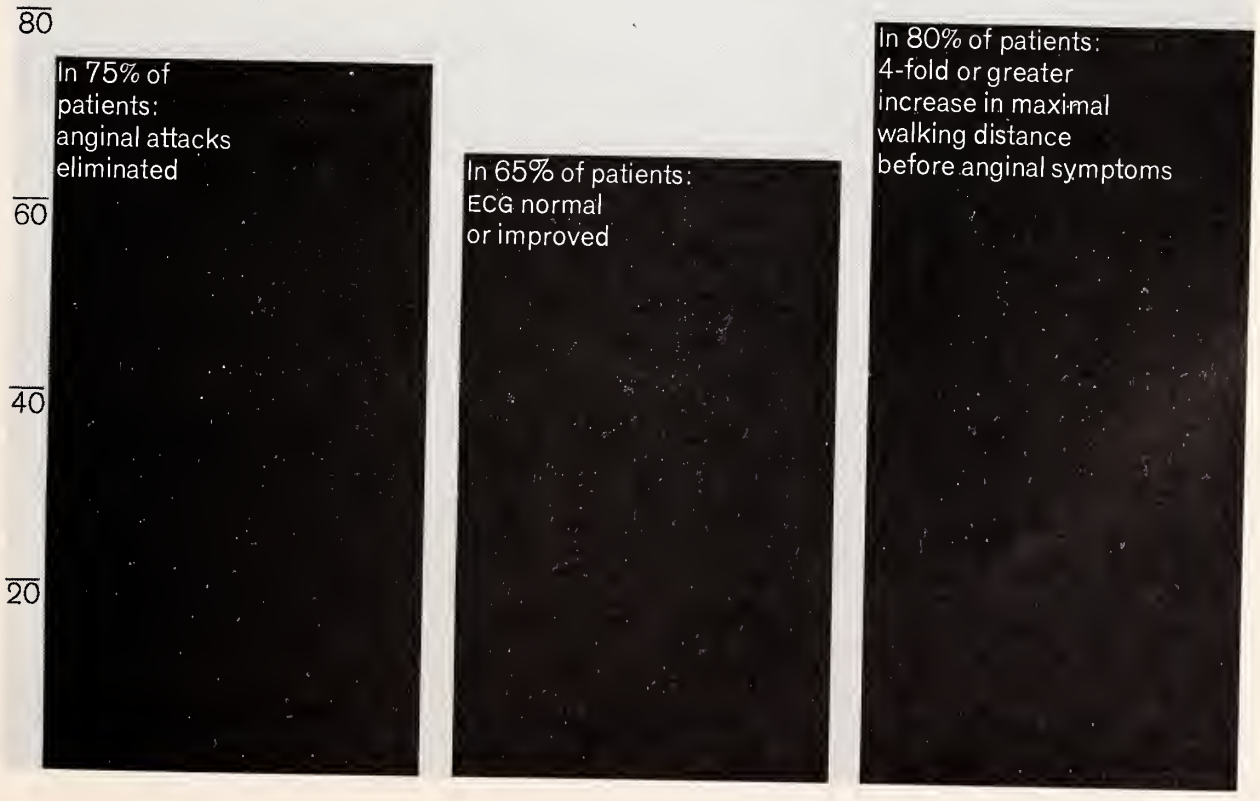
Geigy

After 3 months, 32 of 40 patients showed:

"...reduction or abolition of acute anginal attacks...

"complete or almost complete disappearance of ECG abnormalities...

"marked increase" in walking distance without anginal symptoms



Persantin® brand of dipyridamole

How long-term therapy provides clinical benefits reported on previous pages

1. By increasing energy yield
of the hypoxic myocardial cell, by direct action upon the sarcosomes (heart mitochondria).[1-5]

2. By improving collateral coronary circulation.
Prolonged oral administration of dipyridamole to animals with experimentally induced stenosis of a major coronary artery resulted in superior development of collateral coronary anastomoses and longer survival compared with controls.[6-9]

When given for prolonged periods and in adequate dosage, dipyridamole improves the coronary flow deficit of the ischemic myocardium while supporting cardiac metabolism during the period of repair. Clinically, this is manifested as steady improvement – anginal attacks diminish in frequency and intensity, as do other manifestations of insufficiency (dyspnea, fatigue, and, in many instances, abnormal electrocardiographic findings).

Availability:
Tablets of 25 mg., bottles of 100 and 1000.
Under license from Boehringer Ingelheim G.m.b.H.

Prescribing summary: Persantin,® brand of dipyridamole, is indicated in coronary and myocardial insufficiency, in a dosage of 2 to 6 tablets daily in divided doses before meals for several weeks. Side effects (headache, dizziness, nausea, flushing, weakness, syncope, mild gastrointestinal distress) are minimal and transient. The drug is not recommended in the acute phase of myocardial infarction, and should be used cautiously in hypotension.

References: 1.Kunz,W.;Schmid,W.,and Siess,M.: Arzneimittel-Forsch.12:1098,1962. 2.Siess,M.: Arzneimittel-Forsch.12:683,1962. 3.Laudahn,G.: Experientia 17:415,1961. 4.Lamprecht,W.: 27th Congress of the German Society for Circulation Research,Bad Nauheim,1961. 5.Hockerts,T.,and Bögelmann,G.: Arzneimittel-Forsch.9:47,1959. 6.Vineberg,A.M.,et al.: Canad.M.A.J.87:336,1962. 7.Chari,S.R.,et al.: Presented at the International Congress of Chest Physicians,New Delhi,1963. 8.Neuhaus,G.,et al.: Presented at the Fourth World Congress of Cardiology,Mexico City,1962. 9.Asada, S.,et al.: Japanese Circ.J.26:849,1962.

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The Wolf and the Goat

Federal control of medical education has been extended with the Senate passage of H.R. 12, the "Health Profession Educational Assistance Act of 1963". This bill provides for matching federal grants for construction and rehabilitation of teaching facilities for schools of medicine, dentistry, pharmacy, optometry, podiatry, osteopathy, nursing and public health.

Since the medical community, through the AMA, supported the construction features of this bill, one wonders if we physicians are not now in a position of supporting socialized medical education, while opposing socialized medical care.

The temptation to obtain some of the "free" taxpayers money from the apparently inexhaustable supply in Washington, is indeed difficult to resist. However, the eagerness of the benevolent bureaucrats to bestow these dollars on medical schools and students, suggests the following story, recited by the slave, Aesop, over two thousand years ago.

A wolf, seeing a goat feeding on the brow of a high precipice, where he could not come at her, besought her to come down lower, for fear she should miss her footing at that dizzy height, "and moreover," said he, "the grass is far sweeter and more abundant here below." But the goat replied, "Excuse me; it is not for my dinner that you invite me, but for your own."

Robert F. Lorenzen, M.D.
Editor

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Material submitted for publication in ARIZONA MEDICINE should conform to the following policies:

1. Manuscripts, including references or bibliography, should be typewritten, double-spaced, on one side of the paper only, and the original and a carbon enclosed.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Although the Editors try to catch inaccuracies, the ultimate responsibility is the author's.
4. Articles are accepted for publication only if they are contributed exclusively to this Journal. Ordinarily, contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
5. The Journal reserves the right to edit all material.
6. Reprints will be supplied to the author at printing cost.

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Vested Control

Those who still believe that sustaining federal grants do not lead to federal control should further study the genesis and the growth of the authoritarian bureaus in Washington. To illustrate this you may recall the transition of the National Institute of Health (N.I.H.) from a small meek subservient section of the Department of Health, Education and Welfare, to its dominant position with a budget of almost one billion dollars for medical research and training grants.

In its formative days, the N.I.H. recruited support, and participants for its research and health training programs, based upon their expressed principles — "every effort is to protect the scientific and academic freedom of the principal investigator — he is free to pursue the project in whatever manner he deems most promising." Many were quick to join up because they believed, that here at last, we had a department of our government which, although wholly supported by the Congress, would continue with undented ideals. However, now we can awaken to the fact that the idealistic principles quoted above were changeable regulations and not fixed legislation, and as such, they have been deleted from the N.I.H. working rules.

The N.I.H. budget has climbed to almost one billion dollars. Through changing the regulations, the freedoms of the reeipients have been lessened by more paper work, more frequent reporting, restricted use of funds, no follow-up of promising leads and detailed reporting of the portions of work time of investigators.

J. Russell Elkinton, M. D., clinical investigator and editor of the *Annals of Internal Medicine,* has concluded that this is a ". . . new and deplorable situation . . ." and predicts that if it continues to ". . . enforce restrictive regulations that encroach on the freedom of inquiry and productivity of the scientific community, much of the current scientific research and medical science will dry up and wither away."

The future quality and distribution of medical care is at stake as the future direction of medical education becomes subservient to the "will of the N.I.H." and other granting agencies. These agencies play a large role by influencing the composition and orientation of the medical school faculty. Frequently the grant for a faculty member is essential in categories other than salaries; therefore, the faculty member does not necessarily have to share his loyalty between the medical school and the granting agency. Eighteen per cent (2,188) of our full-time faculty members now receive fifty per cent or more of their salary from federal grants while fifteen per cent receive a lesser portion. One out of three full-time faculty members receive some of their salary from federal grants.

Because of the N.I.H. emphasis on research training, a vital question must be answered. Are we graduating doctors who are properly oriented in the practice of medicine as it best serves the medical needs of the public, or, are we turning out research medical scientists who are primarily interested in numbers? Proper balance must be maintained between the various divisions of medical education.

Recently the N.I.H. has increased its "responsibilities" by paying preferentially higher grants to those individuals who chose specialties which need more doctors. This determination is made by N.I.H. and the preferred specialty now is psychiatry. It was recently suggested by an N.I.H. member that possibly the shortage of General Practitioners could be helped if the N.I.H. would step in and subsidize more training for G.P. residents. Yes, federal government is not missing a single chance to "help". The N.I.H. has bragged that a large per cent of those who become faculty members of our medical schools are individuals for whom they have provided the funds for postgraduate training. The future direction of medical education will pass from the balanced control of academic institutions to the dictates of political control as government enlarges its dominance of the granting agencies.

If these social planners add the principle of medical care for the aged through the Social Security system to the little recognized socialistic accomplishments of the N.I.H., and other government agencies, the bells will have tolled the death knell for the most bountiful health system ever accomplished by man and the system of government which would assure the greatest personal standard of living without destruction of personal freedom.

Whatever the federal government sustains, be it medical care, education, highways, farming, etc., sooner or later it will assume dictatorial control. Not necessarily as implied by law but by permissive regulations. The history of N.I.H., in a brief span of less than one score years, is a prime example of the transition of a small bureau with its promises of ". . . freedom of the principle investigators — he is free to pursue the project in whatever manner he deems most proming . . ." to that of the dictator. This is the lesson to ponder — this is the rule to measure the past and to judge the future — this is government medicine.

Leslie B. Smith, M.D.
Assistant Editor



Smooths out emotional peaks and valleys

'Meprospan'-400 brand of meprobamate contains 400 mg. in sustained-release form. One capsule smooths out the anxious patient's emotional peaks and valleys for 10 to 12 hours — and provides these other advantages:

1. **Especially suitable for maintenance therapy.** Patients whose anxiety has diminished to a mild or moderate level still require a certain amount of tranquilization throughout the day. Sustained-release action is ideally suited to this type of patient.
2. **Simpler dosage schedule.** Since one capsule of 'Meprospan'-400 (meprobamate, sustained release) acts 10 to 12 hours, the patient enjoys a much simpler dosage schedule than with tablets — and is less likely to forget to take the medicine.

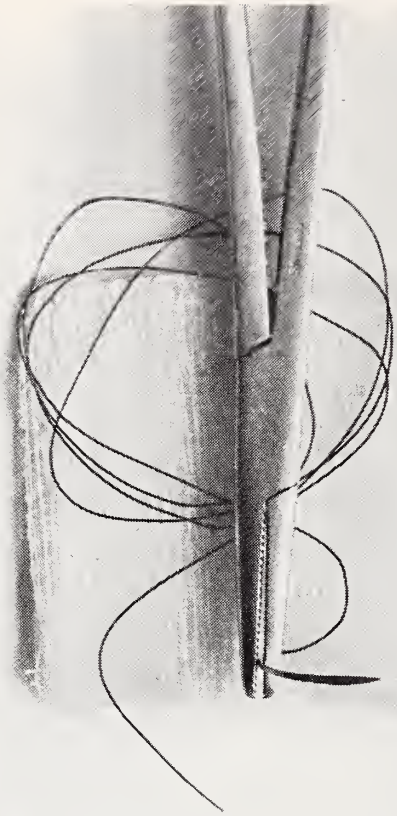
Side Effects: Rarely, skin reactions. May increase effects of excessive alcohol. Use with care in patients with suicidal tendencies. Massive overdosage may produce coma, shock, vasomotor and respiratory collapse. Consider possibility of dependence in patients with history of drug or alcohol addiction.

Available: *'Meprospan'-400* (meprobamate, sustained release) contains meprobamate 400 mg. *'Meprospan'-200* (meprobamate, sustained release) contains meprobamate 200 mg. Both potencies in bottles of 30. **Usual dosage:** One 400 mg. capsule or two 200 mg. capsules at breakfast; repeat with evening meal.

Meprospan®-400
meprobamate 400 mg.
sustained release

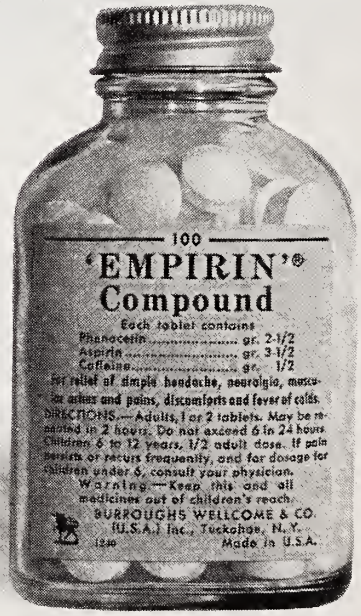
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In trauma,
whether it's
sutures, plaster,
splint or sling...

remember
'Empirin'
Compound
to relieve pain



Also: 'Empirin'® Compound with Codeine Phosphate*
gr. ⅛ —No. 1/gr. ¼ —No. 2/gr. ½ —No. 3/gr. 1—No. 4
*Warning—may be habit forming

How Do You Feel?

Editor's Note: The Phoenix Union High School District board of education recently approved a system of student grading and ranking which eliminates the designations of valedictorian and salutatorian. Ranking of students will be by groups starting with the top 2 per cent academically, instead of by individual, such as number one in a class. Dr. MacDonald Wood, Phoenix surgeon and chief of staff of the Maricopa County General Hospital, disagrees with the decision of the board. The Arizona Republic here publishes his opinion as a dissent to the official decision.

By MacDONALD WOOD, M.D.

The decision of the Phoenix Union High School District, to change the method of grading students, is provocative. It is deserving of thought by all Americans, and particularly by the parents of that district.

The "prestige" positions of valedictorian and salutatorian were labeled as "artificial," "false," and often difficult to decide (for whom?). These positions are to be eliminated; and in compensation for recognition, the students will be placed into percentile groups, either from the top or from the bottom.

Failure of students to adequately attend band, orchestra, chorus, physical education and ROTC, is to be corrected by requiring satisfactory grades in these subjects before one could be considered eligible for "honor roll" position (great new idea). There will be more emphasis on these "soft" courses, which are reportedly "academically strong" (tooting a horn, singing bass, pole vaulting, rifle shooting—academic?).

All of this remodeling of the grading system is in the interest of "fairness and justice" (for whom again?), and also it is hoped will aid in the prevention of dropouts (nobody's better'n me, eh?).

It is most appropriate in the Egalitarianist Deweyite system to equate band, orchestra, chorus, physical education and ROTC, with the basic courses of history, literature, English, science, and language. After all, a "democratic" education is doing good for all of its members on equal terms. The "Cardinal Principles of Secondary Education" of 1918, reaffirmed by the Conant Report of 1959, state "that each member" (in a democratic society) "may develop . . . through activities designed for the well being of his fellow members and of society as a whole" (what a shame we don't all look alike).

These opinions are deserving of disputation.

Why no distinction for excellence? Are there so many superior students that it is impossible to tell which is the best "academically" (what strides our educational system has made!)? Or is it the way grading is done? Remember when one received a percentage grade . . . 93%, 84%, or 17% (when was that?)? This has been replaced by a more "advanced' method of 1, 2, or 3, or even more advanced than that, of 4, 3, 2, or 1 (are you confused?). Over 700 years of educational experience in the Western civilization has been disregarded by the progressive educationalist in a relatively few years by instituting group grading. A "98%" student and a "92%" student will each receive a "1".

Four years of this, and each will receive a final "1", and no one can tell which is the better student academically. Is this the student's fault? Do the teachers at West Point or at Annapolis have a difficult time in determining which student is the best academically? Would not an individual award for the highest grade achieved in each subject, as in mathematics, in English, in science, in history, or in language, not only be

a distinction of academic achievement, but a stimulus to many?

But the real problem is, what is the purpose of education? On this, unfortunately, opinions differ. It should appear obvious, that the prime goal is intellectual development. Appropriate concern however, should be given to music, art, and physical training, and thirdly, vocational training. Intellectual development should be for all. However, not everyone can progress at the same rate. Division into learning ability groups would aid the above average, average, and below average pupil.

A useful citizenry would result if each graduate was versed in the liberal arts subjects. The laborer at the lower intellectual level is usually the first to be replaced. What we need in our country are more people who have fully developed their intellectual facilities. No civilized nation will persist without educated and intelligent citizens. In fact each incompetent citizen is a detriment to the freedom of everyone.

There should be assurance that advancement into the next grade not occur until the student was versed in the subjects of that year. Routine advancement only places the student in an environment of greater frustration and compounds his ignorance. The only benefits of routine advancement are the questionable psychological values of everyone being equal and the preservation of parental pride.

Raising the academic standards should be the principal goal of our educational system. But only with the persistent pressure of the American people, in each school district, will this be initiated and maintained. There has been little to indicate that the educationist hierarchy has produced significant reform. Our system has educated many but has it improved our intellect?

Conformity in the educational system is not the path to progress. Any form of "mass education" is negative to individual progress. Recall that our American heritage is presistently individualistic.

Pursuit of of excellence by the individual is the greatest opportunity we have. Curtailment of this pursuit is detrimental to the basis of education. Our country is and will be desperately in need of leaders. We should give everyone the opportunity, direction, and support toward this goal.

It should be of great concern, whether or not the adopted plan for the Phoenix Union High School District is an elevation in our educational system. Whatever one believes, the American should express himself. There is no one else to speak. An apathetic public has no mouth.

(Reprinted with permission from the September 15, 1963 issue of the ARIZONA REPUBLIC.)

THE DRUG INDUSTRY STANDS BY ITS PRODUCTS

The drug industry is facing a critical period concerning research required for new drugs. Many of these drugs will be important for the cure of diseases. The physician should have available modern discoveries even though there may be side effects in some of the drugs that are prescribed for specific purposes determined by the professional mind. The drug industry knows then they have discovered something beneficial for mankind. The thinking citizen of this country should not condone the "whipping-boy attitude." Politicians prey on people for votes. The pharmaceutical industry must stand on the merits of the products produced. Their voice should be strong and backed by other professions in the medical world to insure our medical progress. Let us be mindful of the axiom, "Divide and Conquer." — George X. Schwemlein, M.D., in *Cincinnati Journal of Medicine*, August 1963.

Report of the AMA Education and Research Foundation

Table 1.—AMA-ERF Statement of Income—1962

Source	Funds for Medical Schools	Loan Guarantee Program*	Research Grants	Medical Journalism	Continuing Medical Education	Perinatal Study	Unrestricted	Total
Physician and physician-related contributions†	$1,438,078.94	$276,383.53	$ 45.00	$2,000.00	...	$ 134.00	$6,706.56	$1,723,348.03
American Medical Association	...	189,257.00	50,000.00	...	...	...	...	239,257.00
Other national medical organizations	...	3,000.00	...	...	15,000.00	...	...	18,000.00
Private industry and foundations	...	372,350.00	...	2,500.00	...	5,000.00	450.00	380,300.00
Student AMA	...	10,000.00	...	...	...	...	...	10,000.00
Income on investment	10,007.00	9,174.80	...	...	...	...	...	19,181.80
Miscellaneous	...	...	730.34	...	...	...	...	730.34
Totals	$1,448,085.94	$860,165.33	$50,775.34	$4,500.00	$15,000.00	$5,134.00	$7,156.56	$2,390,817.17

Table 2.—Physician and Physician-Related Contributions (Including Woman's Auxiliary Contributions) by State

States	Physician and Physician-Related Contributions*				Contributions from Woman's Auxiliaries			
	Funds for Medical Schools		Loan Guarantee Program		Funds for Medical Schools		Loan Guarantee Program‡	
	1961	1962	1962	Total 1962	1961	1962	1962	Total 1962
Alabama	$ 16,536.10	$ 12,273.13	$ 3,448.00	$ 15,721.13	$8,227.15	$5,288.71	$1,572.00	$6,860.71
Alaska	1,578.00	2,842.00	229.00	3,071.00	373.00	130.00	...	130.00
Arizona	5,841.07	18,717.57	2,084.00	20,801.57	2,556.07	4,296.07	1,361.25	5,657.32
Arkansas	3,042.45	3,511.58	1,315.00	4,826.58	920.45	1,247.58	...	1,247.58
California	222,766.67	249,517.78	31,695.00	281,212.78	13,983.07	25,788.99	5.00	25,793.99
Canal Zone	1,050.00	95.00	...	95.00	...	...	...	...
Colorado	21,534.21	19,191.06	5,556.00	24,747.06	1,408.71	1,866.91	...	1,866.91
Connecticut	22,876.01	24,363.59	6,195.00	30,558.59	2,465.25	3,029.17	136.00	3,165.17
Delaware	5,047.50	8,125.11	1,360.00	9,485.11	802.50	1,719.82	...	1,719.82
District of Columbia	12,483.70	14,500.98	3,370.00	17,870.98	1,000.00	1,000.00	...	1,000.00
Florida	12,071.03	14,234.66	7,255.00	21,489.66	2,801.38	2,958.16	...	2,958.16
Georgia	10,996.33	11,979.52	3,237.00	15,216.52	3,172.33	3,464.17	...	3,464.17
Hawaii	4,052.52	6,554.50	1,393.00	7,947.50	1,924.52	2,946.50	51.30	2,997.80
Idaho	5,240.00	4,718.84	855.00	5,573.84	3,050.00	2,688.84	22.00	2,710.84
Illinois	218,006.24	222,003.53	20,503.50	242,507.03	10,240.24	7,931.03	...	7,931.03
Indiana	62,415.70	63,517.11	7,036.00	70,553.11	13,407.20	13,419.51	10.00	13,429.51
Iowa	9,022.33	7,181.33	4,021.37	11,202.70	499.67	783.33	...	783.33
Kansas	17,469.33	16,722.01	4,003.16	20,725.17	3,963.33	5,004.60	5.00	5,009.60
Kentucky	4,303.00	6,694.08	1,857.00	8,551.08	1,253.00	1,876.08	6.00	1,882.08
Louisiana	8,523.66	8,036.39	3,526.50	11,562.89	4,018.66	2,949.39	...	2,949.39
Maine	2,206.18	2,002.55	910.00	2,912.55	706.18	464.55	...	464.55
Maryland	18,475.90	21,024.57	4,596.00	25,620.57	545.90	2,805.58	...	2,805.58
Massachusetts	13,262.18	16,013.52	7,095.00	23,108.52	1,155.60	1,250.90	...	1,250.90
Michigan	32,986.14	36,592.47	10,251.00	46,843.47	10,304.14	12,421.21	475.46	12,896.67
Minnesota	25,645.25	33,543.03	5,976.00	39,519.03	1,959.25	2,907.05	26.25	2,933.30
Mississippi	6,686.99	8,453.82	1,375.00	9,828.82	703.99	1,118.32	96.00	1,214.32
Missouri	14,884.30	15,345.32	4,606.00	19,951.32	2,675.30	3,186.32	...	3,186.32
Montana	3,999.31	4,586.19	1,852.00	6,438.19	1,145.31	1,135.49	...	1,135.49
Nebraska	9,731.00	8,711.20	2,361.00	11,072.20	1,687.00	2,573.70	80.00	2,653.70
Nevada	8,701.60	8,678.50	600.00	9,278.50	2,291.60	1,893.50	39.00	1,932.50
New Hampshire	4,826.75	5,279.29	1,748.00	7,027.29	2,275.75	3,274.29	...	3,274.29
New Jersey	44,651.72	45,088.55	6,318.00	51,406.55	4,017.60	3,837.31	...	3,837.31
New Mexico	4,573.25	5,398.16	1,687.00	7,085.16	283.25	334.75	...	334.75
New York	71,977.24	75,829.78	20,817.50	96,647.28	9,973.54	10,607.74	25.00	10,632.74
North Carolina	11,609.56	12,253.38	3,705.00	15,958.38	2,864.60	1,896.58	...	1,896.58
North Dakota	4,963.53	6,026.38	1,080.00	7,106.38	809.53	811.38	...	811.38
Ohio,	63,177.41	67,044.32	15,094.00	82,138.32	28,018.01	28,585.09	497.34	29,082.43
Oklahoma	5,364.67	5,892.76	2,494.00	8,386.76	2,042.67	2,688.76	10.00	2,698.76
Oregon	20,991.90	19,571.96	8,358.00	27,929.96	977.50	1,435.46	...	1,435.46
Pennsylvania	72,764.77	65,762.20	21,514.00	87,276.20	4,616.97	8,858.70	...	8,858.70
Puerto Rico	1,811.00	1,145.00	698.00	1,843.00	...	...	...	...
Rhode Island	2,023.00	2,355.52	903.00	3,258.52	432.00	430.52	...	430.52
South Carolina	24,714.43	54,720.84	1,305.00	56,025.84	3,032.56	3,229.22	...	3,229.22
South Dakota	6,563.95	6,120.80	988.00	7,108.80	592.95	470.80	250.00	720.80
Tennessee	22,062.19	37,484.34	3,399.00	40,883.34	12,105.19	27,968.34	456.00	28,424.34
Texas	55,213.32	62,887.75	14,160.00	77,047.75	17,241.82	20,850.10	15.00	20,865.10
Utah	14,148.80	14,822.00	3,137.00	17,959.00	706.80	1,377.00	...	1,377.00
Vermont	3,651.31	3,639.40	691.00	4,330.40	283.00	185.60	...	185.60
Virgin Islands	35.00	10.00	...	10.00	...	...	...	...
Virginia	14,785.50	16,318.53	7,613.50	23,932.03	1,183.50	1,999.03	...	1,999.03
Washington	17,477.74	20,508.86	4,964.00	25,472.86	3,797.94	5,360.66	10.00	5,370.66
West Virginia	13,508.07	14,361.50	1,676.00	16,037.50	2,131.07	3,766.50	...	3,766.50
Wisconsin	16,604.15	21,547.30	4,828.00	26,375.30	4,777.72	6,352.33	...	6,352.33
Wyoming	3,669.50	4,051.00	350.00	4,401.00	789.50	531.00	194.00	725.00
Foreign	787.64	287.00	294.00	581.00	...	...	...	...
Totals	$1,303,161.10	$1,438,137.56	$276,383.53	$1,714,521.09†	$202,219.27	$252,996.64	$5,342.60	$258,339.24

*Includes families, friends, state and county medical societies, and state and county woman's auxiliaries.

†Does not include contributions to other AMA--ERF programs. (See Table 1.)

‡Fund raising for the loan program is a new activity for the auxiliaries, and because their fiscal year ends in June many of them will be reporting additional contributions at that time.

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ROERER

WILLIAM H. RORER, INC., FORT WASHINGTON, PA.

W. Paul Holbrook, M.D.
1898 - 1963



Dr. W. Paul Holbrook, first national president of the Arthritis and Rheumatism Foundation, and a prominent Tucson physician since 1928, died September 16, 1963 in Springerville, Arizona during a hunting trip. That morning he had gone hunting with his dog and when he did not come back when expected Bob Hooper, a rancher, went out looking for him. He found him with gun in hand and his dog waiting by his side. His death was believed due to a heart attack.

Dr. Holbrook lived at 4101 East Whittier Street, Tucson, Arizona. He was 65. After coming to Tucson in 1928 he was physician-in-chief of the Desert Sanatorium (now the Tucson Medical Center). In 1934 he opened his own offices in Tucson along with his associate, Dr. Donald F. Hill. Much of Dr. Holbrook's career was devoted to the development of a medical group now composed of Doctors Hill, Stephens, Goodin, Parsons and Fosdick, with another doctor scheduled to join the group in early 1964.

A graduate in 1925 of the University of Oregon Medical School, which he attended after receiving his B. S. degree from the University of Washington, Dr. Holbrook was a senior instructor in laboratory diagnoses at the University of Oregon for two years. He did post-graduate work in London, Vienna, and various clinics in this country and abroad.

He served in both world wars. During World War II he was chief of professional services for the U. S. Army Air Corps, responsible for the quality of its medical care. A Colonel, he was awarded the Legion of Merit and the Army Commendation Ribbon.

In addition to heading the arthritis and rheumatism organization, Dr. Holbrook had served as president of the Arizona State Medical Association and the American Rheumatism Association.

On June 12, 1924 Dr. Holbrook married the former Margaret Bressler, who survives him, in Vancouver, Washington. They have three children: John Paul, a Major in the Air Force Medical Corps, stationed in England, who flew to Tucson for the services; William Bruce, of Phoenix, Arizona; a daughter, Mrs. Elizabeth Whidden who lives in Big Timber, Montana. Dr. Holbrook is also survived by twelve grandchildren.

During his life Dr. Holbrook had numerous appointments to hospital staffs, including: senior medical consultant to St. Mary's Hospital, Tucson, and Tucson Medical Center; medical consultant of the Southern Pacific Sanatorium, Tucson; consultant in medicine to the Surgeon General, U. S. Air Force; consultant in medicine to the Veterans' Bureau. He was a member of the rheumatism study section, U. S. Public Health Service, and chairman of the Macy Foundation Conference on Connective Tissue.

He was a member of the Old Pueblo Club, the Army-Navy Club of Washington, D. C., and was a 32nd degree Mason and a Shriner.

He belonged to four honor societies — Alpha Omega Alpha, Sigma Xi, Nu Sigma Nu, and Pi Kappa Alpha; also eight medical societies.

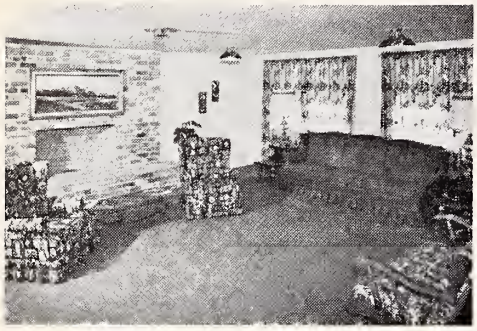
Dr. Holbrook was the author of numerous medical articles on rheumatic and cardiovascular diseases, and wrote a "Manual of Rheumatic Diseases" published by Year Book Publishers in 1950.

A past president of the Arizona Medical Association he championed the location of the projected state medical school at the University of Arizona.

Donald F. Hill, M.D.

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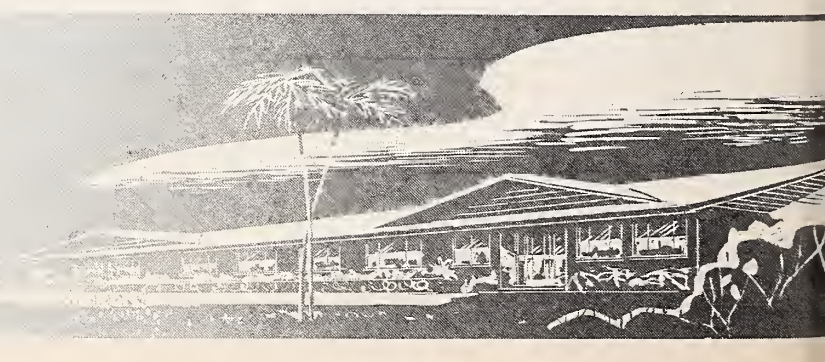
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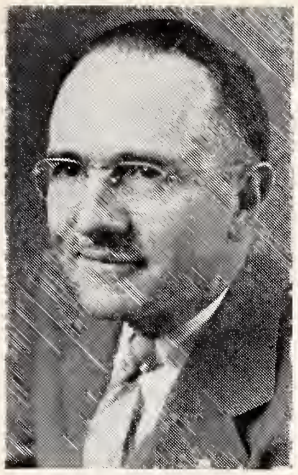
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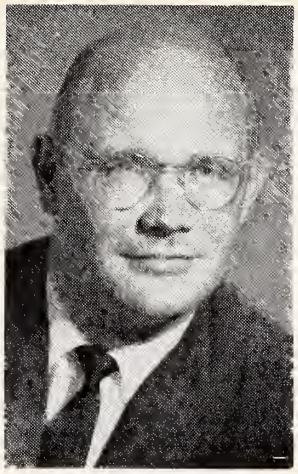
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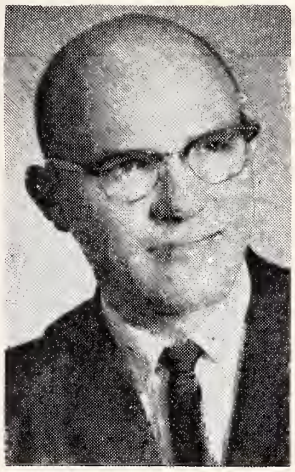




Dr. Brazie



Dr. Lingenfelter



Dr. Standifer

Mohave County Medical Society

Articles of Incorpation for the Mohave County Medical Society were filed with the Recorder in the Kingman, Arizona Territory in 1899. The total membership numbered three, all of whom were officers of the Society. Doctor Knight, of White Hills (now a ghost town) was the first president, Doctor John W. Flinn (father of Doctor Robert S. Flinn of Phoenix) was vice-president, and Doctor A. M. Cowie was secretary-treasurer.

The present membership is still three. Doctor Walter Brazie is currently serving as president with Doctor John G. Lingenfelter as vice-president and Doctor John J. Sandifer as secretary-treasurer. During the intervening years the membership has fluctuated from two to a high of seven in 1914. At the present time, the Mohave County Society has the smallest membership of the fourteen component societies.

This group is extremely proud of the fact that Doctor John R. Whitesides, of Chloride and an early member of the society, compiled and introduced Arizona's first Public Health Statute in 1903 while serving in the territorial legislature. Much of this original law remains in the revised statute which is used today.

A notable accomplishment of the Society was the Sabin Oral Vaccine Program co-sponsored with the Kingman Elks Club in the spring of 1963. Approximately 4,000 people were given the three doses of oral vaccine.

Doctor Brazie has practiced medicine in Mohave County since 1925 and is presently serving as Speaker of the House of Delegates of the Arizona Medical Association. After spending a year in Holbrook, Doctor Standifer moved to Kingman and has been in practice there for four years. A comparative newcomer, Doctor Lingenfelter has served the Kingman area for two years. Doctor George M. Clarke began his practice in Kingman in late September of this year and is currently an applicant for membership.

WHO SPENDS THE MOST?
Top Washington Lobbyists in 1962

1.	National Committee for Insurance Taxation	$181,767.00
2.	National Headquarters (AFL-CIO)	149,212.00
3.	United Federation of Postal Clerks (AFL-CIO)	125,732.00
4.	American Farm Bureau Federation	118,957.00
5.	U. S. Savings and Loan League	113,013.00
6.	American Legion	102,931.00
7.	National Housing Conference	101,601.00
8.	National Farmers Union	98,011.00
9.	International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America	93,595.00
10.	National Association of Letter Carriers (AFL-CIO)	83,435.00
11.	**AMERICAN MEDICAL ASSOCIATION**	83,075.00

Reported by the Congressional Quarterly's Annual study of the lobby spending reports under the Federal Regulation of Lobbying Act.

Cash Award
$200.00

The Arizona Medical Association, Inc., in cooperation with MEAD JOHNSON COMPANY, INC., of Evansville, Indiana, will present its AESCULAPIUS AWARD ($200.00 cash prize) to the author (s) of the medical scientific exhibit adjudged the best of those displayed during its 1964 ANNUAL MEETING. Judges will be appointed by the Association from among its members and the cash award will be accompanied by an engraved wall plaque bearing due notice of the occasion and the author's name.

Exhibits will be shown from April 29, through May 2, 1964 in the scientific exhibit section of the meeting which will be held in the San Marcos Hotel, Chandler, Arizona.

NOTE: To be acceptable for the AESCULAPIUS AWARD, the title of the truly scientific exhibit, together with space requirements and a brief description thereof for program purposes, must be in the hands of the Secretary, The Arizona Medical Association, Inc., Post Office Box 128, Scottsdale, Arizona, on or before February 1, 1964. For further information, please also write the Secretary, as indicated above.

THE SCIENTIFIC ASSEMBLY COMMITTEE

W. Albert Brewer, M.D., President-elect, Chairman

THE Board of Medical Examiners of the State of Arizona, at a regular meeting held Saturday, July 20, 1963, issued certificates to practice medicine and surgery in this State, to the following doctors of medicine:

ALMGREN, Ronald Charles (Pd) 601 N. Wilmot Road, Tucson, Arizona; ANDERSON, JR., George Harold (GP) 4550 North 51st Ave., Phoenix, Arizona; ANDREWS, JR., Albert Rudolph (GP) 4248 West Moreland, Phoenix, Arizona; ASADOURIAN, Leon Asadour (ObG) Maricopa County General Hospital, Phoenix.

BAXTER, Anetha Elinor (Anes) P. O. Box 3337, Scottsdale, Arizona; BERGSCHNEIDER, Charles Michael (I) P. O. Box 1446, Tucson, Arizona; BLOOMFIELD, Nathaniel (ObG) 601 N. Wilmot Road, Tucson, Arizona; BRECHER, Paul Wesley (GP) Storm Lake Clinic, 315 W. 5th St., Storm Lake, Iowa; BRUNER, Richard Harrison (P) 1158 E. Missouri Ave., Phoenix 14, Arizona.

CHALOM, Albert Elie (ObG) 1524 North Norton, Tucson, Arizona; COUTU, Milton Henry (GP) 5701 East Apache Trail, Mesa, Arizona; CUTCHER, Solomon (GP) Box 182, Ramey AFB, Aguadilla, Puerto Rico 00604.

DEFREITAS, Gabriel Fernandes (S) 330 Maple Street, New Bedford, Mass.; DETTINGER, Garth Bryant (S) 6449 Calle de San Alberto, Tucson, Ariz.; DODSON, Jerry Lee (GP) 3131 East Second Street, Tucson, Ariz.

ELY, George Bleecker (ALR) 601 N. Wilmot Road, Tucson, Arizona; EPSTEIN, Jay Alan (ObG) 2560 Batchelder Street, Brooklyn 35, N. Y.

FISHER, Charles Irwin (I) 251 East Chicago Ave., Chicago 11, Illinois; FOWLER, William Rothwell (GP) 1000 Hudson St., Silver City, N. Mexico.

GARBER, Robert Slocum (PN) 383 West State St., Trenton 8, N. Jersey; GLASSON, Lancelot George Getty (S) Box 8007, VA Hospital,

Tucson, Arizona; GOEBEL, Clarence Joseph (GP) 762 Orpheum Bldg., Sioux City 1, Iowa.

HUYLER, Washington Conner (R) Route 8, Box 335 R, Tucson, Arizona; JOHNSON, Donald Carl (Oph) USAF Hospital, Chanute AFB, Illinoise; JOHNSON, Egon Victor (Or) Brooke General Hospital, Fort Sam Houston, Texas.

KAZANJIAN, Kenneth Alexander (PL) 475 Commonwealth Avenue, Boston, Mass.; KESSLER, Joseph John (GP) 3504 N. 14th Street, St. Louis 7, Missouri; KIPLIN, Lydell Craig (Oph) Brooke General Hospital, Beach Pavilion, Ophthalmology Service, Fort Sam Houston, Texas.

LEENHOUTS, Thomas Merrell (Oph) 711 N. Beaver, Flagstaff, Arizona; LOTT, Richard Mark (ObG) 1150 N. Country Club Drive, Mesa, Ariz.

MAYNARD, Russell Milton (Path) 7th St. and Indian School Road, Phoenix; MILLER, JR., William Earl (A-I) 724 W. Avalon Drive, Phoenix 13, Arizona; MUSGRAVE, JR., Alford Duffield (Path) Maricopa County Hospital, Phoenix, Ariz.; MYERS, JR., Lafe Hasty (GP) Station Hospital, MCAS El Toro, Santa Ana, California.

PENDLETON, Raymond Lancing (GP) 365 N. Haskell Avenue, Willcox, Arizona; PHARES, George Roy (GP) 1835 W. Missouri Avenue, Phoenix, Arizona; PITTS, II, Eugene (R) 420 Seventh Street, Racine, Wisconsin; POPE, JR., Charles Henry (Path) 1509 West Truman Road, Independence, Missouri; PRICE, William Ray (GP) Maricopa County Gen. Hospital, Phoenix 9, Arizona.

REECK, Leland Kehm (P) 801 S. Prudence Road, Tucson, Arizona; RICE, JR., Clair Malcolm (GP) 8056 Lincoln Ave., Skokie, Illinois; ROTH, Edward (GP) 581 McKean Avenue, Donora, Pennsylvania; RUHL, Forester Gehring (ObG) 151 Summit Avenue, Summit, New Jersey.

SAYLOR, Clyde Llewellyn (GP) San Manuel Hospital, San Manuel, Arizona; SCHNUR, Paul Leo (GP) Box 196, Sedona, Arizona; SCOGGIN, Eddie Benson (GP) Maricopa County General Hospital, Phoenix, Arizona; SCRUGGS, JR., Charles Watkins (GP) 10830 S. Halsted St., Chicago 28, Illinois; SHEELEY, William Flavel (P) 1700 18th St., N.W., Washington 9, D.C.; SHEETS, Charles Earl (GP) Box 176, Manilla, Indiana; SHEPARD, William Lindsay (I) 1901 Augusta Circle, Tucson, Arizona; SILVERMAN, Jay (I) 601 N. Wilmot Road, Tucson, Arizona; SOBOTKA, Joseph J. (GP) 5410 S. Central, Phoenix 40, Arizona; STUART, JR., Ted James (GP) 6747 West Turney, Phoenix, Arizona.

THOENY, Robert Hall (R) 909 East Brill, Phoenix, Arizona; TOBIAS, Donald A. (R) 100 West Maryland, Phoenix, Arizona.

VOLK, Philip Dale (GP) 1720 West Wetmore Road, Tucson, Arizona.

WAGNER, Richard (I) 820 S. E. Louisiana, Albuquerque, New Mexico; WALKER, John Henderson (GP) 702 Eighth Avenue, Safford, Arizona; WILKINS, Harold Dean (R) 1603 N. Tucson Boulevard, Tucson, Arizona; WILT, JR., William George (S) 5600 South Taven Drive, North Highlands, California.

Thumbnail Case Reports

At the suggestion of Assistant Editor Dr. Mayer Hyman of Tucson, a new feature will be added to *Arizona Medicine.*

A section, to be known as "Thumbnail Case Reports," will be devoted to brief, concise accounts of unusual, interesting or baffling clinical cases or situations. It is felt that many Arizona doctors see a wealth of clinical material, but do not have the time, nor the academic inclination, to write a thorough report including a lengthy review of the literature. "Thumbnail Case Reports" will offer a medium for physicians to report such interesting material without a bibliography or review of prior reports.

Material submitted for this section must be less than 400 words in length.

Cases with doubtful diagnosis, may be submitted with a request for comments from other physicians.

"Thumbnail Case Reports" will begin as a regular feature when sufficient material has been received. We will appreciate your contribution.

Robert F. Lorenzen, M.D.
Editor

PMA Challenges FDA

Thirty-seven prescription drug producers and the Pharmaceutical Manufacturers Association (PMA) went into a federal district court recently to challenge the legal validity of a drug advertising and labeling regulation recently promulgated by the Food and Drug Administration (FDA).

The action, filed in the U. S. District Court in Wilmington, Del., alleged that the regulation is "unauthorized by and contrary to law."

Secretary of Health, Education and Welfare Anthony J. Celebrezze and Food and Drug Commissioner George P. Larrick were named as defendants.

The controversial regulation was issued last June 20 as a result of the 1962 amendments to the Food, Drug, and Cosmetic Act. The amended law requires only that "established names" of prescription drugs be printed in labeling and advertising "prominently and in type at least half as large as that used for any proprietary name," while on the other hand the regulation would require the established name to appear "each time" the protected trademark or brand name appears.

Established names of drugs usually are originated by manufacturers in cooperation with the U. S. Pharmacopeia and the American Medical Association. An established name may be used by any producer to identify the active or therapeutic ingredient in a drug product. In contrast, a protected brand name may be used only by a single producer to identify himself and his product.

Manufacturers who place brand names on products are thus indicating willingness to stand behind the quality and purity of their products. This is especially important for drugs. The plaintiffs pointed out that drugs with the same established name may differ in therapeutic effect because of varying inactive ingredients and manufacturing methods.

The plaintiffs said that, in addition to going beyond statutory authority, the regulation requiring repetition of the established name with each use of a protected brand name on a container label, in a package insert, or in any advertising to physicians would be confusing and would make reading more difficult, to the detriment of doctors and ultimately their patients.

PMA, which represents producers of more than 90 percent of U. S. drugs, and the other plaintiffs told the court that the firms also will be subject to substantial expense if they must revise advertising and labeling materials to conform to the regulation.

This action marks the first time in the 25-year history of the Food, Drug, and Cosmetic Act that the prescription drug industry has instituted a court action to invalidate an FDA regulation.

Booklet Available

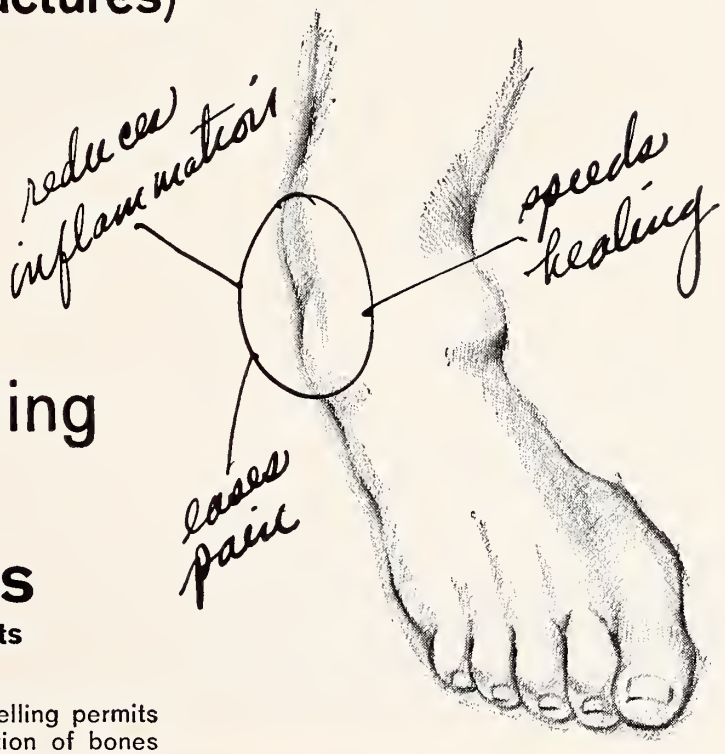
The Arizona Tuberculosis and Health Association announces the availability of a new manuel about Chronic Obstructive Pulmonary Emphysema published by the National Tuberculosis Association. Physicians may obtain it by sending 25c to cover handling and mailing to the Arizona Tuberculosis and Health Association, 733 West McDowell Road, Phoenix 7.

Brand Names For Placebos?

Clinicians are experiencing serious difficulties in conducting double-blind studies which, ironically, are all the more necessary because of the new (FDA) regulations. As one company vice president put it, placebo preparations cannot be sent out without being so labeled; when so labeled, they cease to be placebos. In fact, the need to file an investigational drug form just to change an approved tablet into a capsule for the purpose of such studies unnecessarily delays or prevents such testing. — Austin Smith, M.D., President, Pharmaceutical Manufacturers Association, to Federal Bar Association meeting, Washington, D. C., June 27, 1963.

in trauma (fractures)

proven proteolytic enzyme therapy[1-5] for faster healing



in fractures

These objective benefits with enzyme therapy:

The rapid reduction in swelling permits more accurate immobilization of bones and possibly better approximation of the bone fragments.[2]

For best results, adequate dosage is important. **ORENZYME,** two tablets q.i.d.; dosage may be reduced to one tablet q.i.d. once symptoms begin to disappear. For severe conditions, parenteral trypsin and Orenzyme concurrently.

PARENZYME AQUEOUS [trypsin], 1 ml. injected intramuscularly (deep intragluteally) once or twice daily for several days, followed by Orenzyme, one tablet four times daily as indicated for maintenance.

Indications: Traumatic wounds, ocular inflammation, thrombophlebitis, phlebitis, ulceration (varicose, diabetic, decubitus); also helps liquefy tenacious bronchial mucous secretions.

ORENZYME®

Composition: Each tablet contains trypsin 68%, chymotrypsin 30% and ribonuclease 2%, equivalent in proteolytic activity to 20 mg. of crystalline trypsin, enteric coated to insure release in the intestinal tract.

Side Effects: Side effects with Orenzyme are rare. If they occur, discontinuation of the drug is recommended.

Supplied: Bottles of 48 and 500 red, enteric coated tablets.

PARENZYME® AQUEOUS [trypsin]

Side Effects and Precautions: Side effects with Parenzyme [trypsin] are rare. Prolonged use occasionally causes itching and rash which may be relieved by antihistaminics. Local pain and induration at the site of injection may occur. The usual precautions should be observed as for the injection of any protein material. As a precaution, patients should be observed for about 15 minutes following an injection of trypsin. Epinephrine Injection, U.S.P. 1:1000 should be on hand for any systemic reactions.

Supplied: (1) In sterile **multiple dose** vial containing lyophilized trypsin 62,500 Units, N.F. (25 mg.), plus 5 ml. vial of aqueous diluent. (2) In sterile **single dose** vial containing lyophilized trypsin, 12,500 Units, N.F. (5 mg.), plus 1 ml. vial of aqueous diluent.

Compatibilities: There are no known incompatibilities for Parenzyme [trypsin] or Orenzyme. Other medications may be given with these preparations, if indicated. In infection, appropriate antibiotic therapy should be used concurrently.



References: 1. Hopen, J. M., and Campagna, F. N.: J. Philadelphia Gen. Hosp. **5**:20, 1954. 2. Lichtman, A. L.: Delaware M. J. **33**:11, 1961. 3. Lichtman, A. L.: Ann. New York Acad. Sc. **68**:196, 1957. 4. Golden, H. T.: Clin. Med. **2**:583, 1955. 5. Stuteville, O. H., **et al.**: Am. J. Surg. **96**:787, 1958.

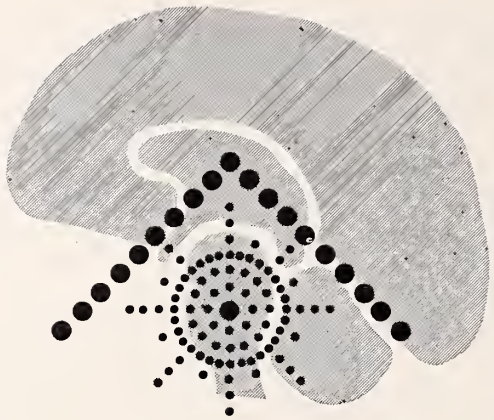
P-2383/63 7/63

Orenzyme® or Parenzyme® [trypsin]

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SAVE DAYS IN HEALING reduce inflammation/ease pain

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in visceral motor disorders...

EASIER MANAGEMENT

When emotional disturbance is a significant factor in dysfunction of gastrointestinal tone, motility and secretion, Pro-Banthīne with Phenobarbital provides the dual activity that leads to easier management of both the patient and his problem:

Pro-Banthīne (propantheline bromide) to neutralize the effect of excitatory impulses at visceral end organs, *and*

Phenobarbital to moderate emotional incitement centrally.

Pro-Banthīne with Phenobarbital is indicated when a mild to a moderate psychic element is a factor in: Peptic ulcer • Biliary dyskinesia • Pylorospasm • Intestinal hypermotility • Spastic colon • Gastritis • Other dysfunctions of the gastrointestinal tract.

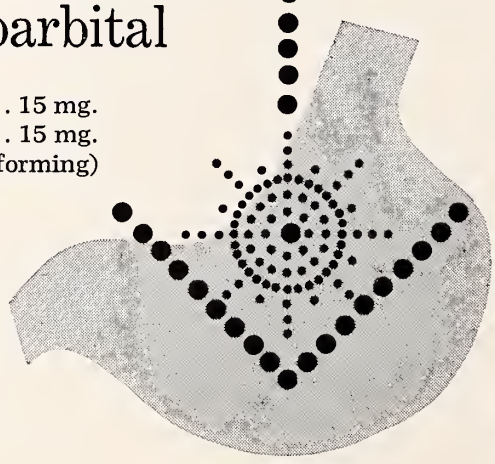
Dosage: One tablet four times a day.

Urinary hesitancy, xerostomia, mydriasis and, theoretically, a curare-like action might occur with Pro-Banthīne (brand of propantheline bromide). It is contraindicated in the presence of glaucoma or severe cardiac disease. The usual precautions with regard to phenobarbital should be taken.

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Each tablet contains:
propantheline bromide . . 15 mg.
phenobarbital 15 mg.
(Warning: May be habit forming)





In Sprains, Strains and Muscle Spasm, 'Soma' Compound

numbs the pain...not the patient

A potent analgesic and a superior muscle relaxant

1. A sprain or fracture is not a big clinical problem—but it does hurt. And if there is housework to do and kids to mind, the patient needs something to numb the pain.

2. A.P.C. compounds have limited usefulness; and the patient can buy them without your prescription. Unfortunately, most of them are too mild to be effective for sprains—and more potent products too often make the patient feel 'dopey'.

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4. Why not try 'Soma' Compound? Dosage is 1 or 2 tablets q.i.d. For more severe pain, try 'Soma' Compound + Codeine. Dosage: 1 or 2 tablets q.i.d.

5. Hypersensitivity to carisoprodol may occur rarely. Codeine may produce addiction, nausea, vomiting, constipation or miosis.

Soma® Compound

carisoprodol 200 mg., acetophenetidin 160 mg., caffeine 32 mg.

Soma® Compound + Codeine

carisoprodol 200 mg., acetophenetidin 160 mg., caffeine 32 mg., codeine phosphate 16 mg. (Warning—may be habit forming.)

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CSO-9193

Eighth Annual Meeting

November 20-23, 1963

Dear Doctor:

This is to remind you that on the 20th to the 23rd of this coming November, our Medical Society of the United States and Mexico will hold its EIGHTH Annual Meeting in Guadalajara, Jal., Mexico. The "Guadalajara Hospital" of the Southern Pacific of Mexico Railroad will serve as headquarters.

The scientific program has been so arranged as to be of the most practical value to the practitioners who attend, and to emphasize the most recent advances in the various topics to be discussed.

The Inaugural Session will take place at 10:00 A.M. on the 21st. It will be presided over by the high officials of the State Government, the City, and the University, the opening remarks to be made by the Governor of Jalisco, the Honorable Professor Juan Gil Preciado.

The Scientific papers will be started forthwith and will be on the subject of the Medical Applications of Radioisotopes. In the afternoon session we plan to have topics of free choice.

On Friday the 22nd, at 9:00 a.m. there will be a Round Table on: "Cardiological Problems and their Therapeutic Management." In the afternoon, there will be a session on the general theme of "Recent Advances in the Surgical Specialties."

On Saturday morning there will be a panel type of session on the role of Internal Medicine in Geriatrics. At the conclusion of this session, the business meeting will take place with the election of new officers.

The Social Activities at this meeting will be as follows:

Wednesday, November 20, registration all day, at the Hospital Guadalajara of the Southern Pacific Railroad. At 8:00 p.m. Break-the-Ice Cocktail Party.

Thursday, November 21, Inaugural Session with a special program. At the conclusion of the Inaugural Session, to which the Ladies are invited, they will be invited to make a tour of the city with a special visit to the facilities of the National Institute for the Protection of Children in Guadalajara, where they will be welcomed by Mme. Aida Elizondo de Gil Preciado, wife of the Governor. At 2:00 p.m. there will be a dinner for the ladies, hosted by Mrs. Contreras Reyna at a not yet designated place. At 9:00 p.m. there will be a concert in the Chapel of the "Instituto Cabanas," with refreshments, offered by the State Government.

Friday, November 22, Dinner at the Villa de Chapala for the Doctors, Ladies and guests, courtesy of Levy Pharmaceuticals. At 7:00 p.m. there will be a Fashion Show for the Ladies courtesy of the "Las Fabricas de Francia" Department Store.

Saturday, November 23, 10:00 p.m. President's Dinner Dance. Anticipating the honor of your company at the EIGHTH Annual Meeting of the Medical Society of the United States and Mexico.

I remain,

Cordially yours,

Eduardo Contreras Reyna, M.D.
President

Fausto Beron Medina, M.D.
Secretary

Note: The system of simultaneous bilingual translation through individual transistors which has been so highly successful in the past, will again be employed.

Octavo Congreso Anual

Noviembre 20-23, 1963

Estimado doctor:

Para recordarle que durante los días 20 al 23 del mes de noviembre próximo se llevará a afecto en el Hospital Guaradalajara del Ferrocarril Sur Pacifico de México, el Octavo Congreso Anual de nuestra Sociedad Médica de Estados Unidos de Norteamérica y Mexico.

La sesion científica se programó con el fin de ofrecer material de valor practico en el ejercicio de nuestra profesión y a la vez darle énfasis a los últimos delantos en las materias discutidas.

La Sesión Inaugural, que será presidida por altos Dignatarios del gobierno estatal, de la ciudad ye de la Universidad se llevará a efecto el dia 21 a las 10:00 A.M. El Honorable Profesor Juan Gil Preciado, Gobernador del Estado de Jalisco, pronunciará el discurso de apertura.

La presentación de trabajos científicos se iniciará inmediatamente después del discurso de apertura. En la sesion de la mañana se discutirán las aplicaciones medicas de los radioisótopos. En la tarde la discusión sera libre y se invita a los concurrentes participar en tópicos de su elección.

El viernes dia 22, a las 9:00 A.M. se discutirá, en Mesa Redonda, el tema: "Problemas Cardiológicos y su Tratamiento Clinico." En la tarde se discutirá en la asamblea el tema: "Los Ultimos Adelantos en las Especialidades Quirúrgicas."

El sábado por la mañana un grupo de espacialistas discutirá ante la asamblea el tema. "El Papel de la Medicina Interna en la Geriatría." Al concluirse esta sesión se llevará a efecto la Sesión de Negocios donde se eligirá la Nueva Junta Directiva.

A continuación el Programa Social:

Miércoles, 20 de noviembre, matrícula todo el día en el Hospital Guadalajara del Ferrocarril del Sur Pacifico. A las 8:00 P.M. "Break-the-Ice Cocktail Party."

Jueves, 21 de noviembre, sesión inaugural con un programa especial. Al concluir esta sesión inicial para damas y caballeros das damas se invitan a hacer un recorrido de la ciudad terminando en una visita al Instituto Nacional para la Protección del Niño en Guadalajara. En el instituto la senorá Aida Elizondo de Gil Preciado, esposa del gobernador, les dará la Bienvenida. A las 2:00 P.M. la señora Contreras Reyna auspiciará una comida para las damas en un lugar aun no señalado. A las 9:00 P.M. el gobierno del estado auspiciará un concierto cn la Capilla del Instituto Cabañas. Se servirán refrescos.

Viernes, 22 de noviembre. Comida en la Villa de Chapala para los médicos, las damas y sus huéspedes, por cortesía de Los Productos Farmaceuticos Levy. A las 7:00 P.M. la tienda "Las Fábricas de Francia" auspiciará una exhibición de modas para las damas.

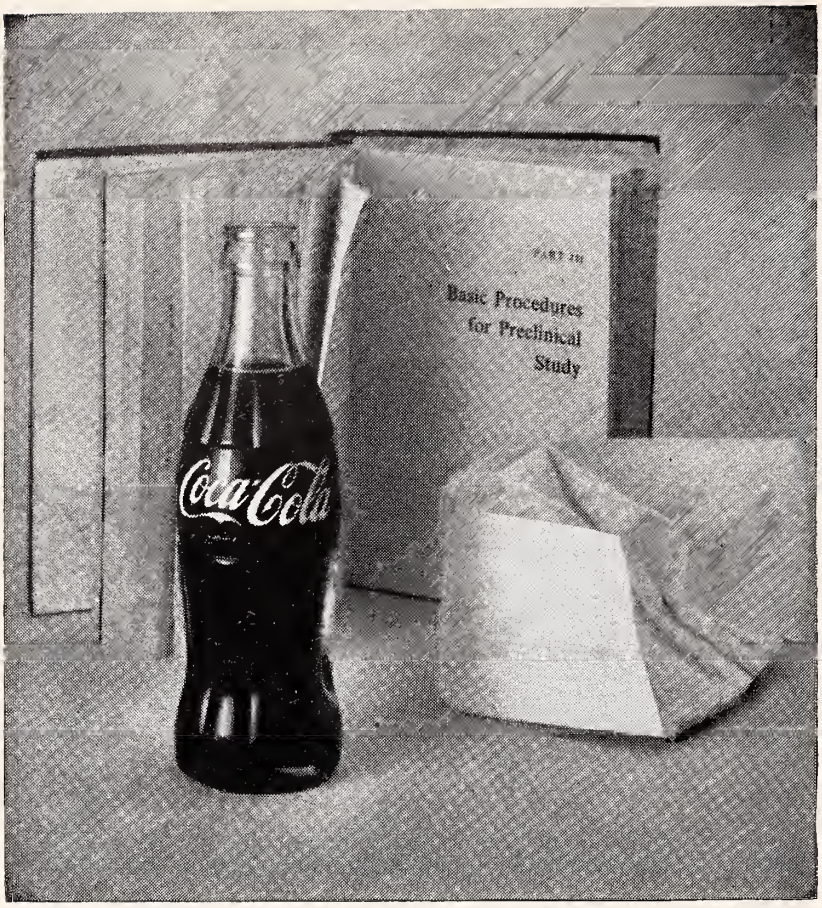
Sabado, 23 de noviembre, 10:00 P.M. Comida-Baile Presidencial. Anticipando su presencia en el Octavo Congreso Anual de la Sociedad Médica de los Estados Unidos y Mexico, quedo,

Suyo cordialmente,

Eduardo Contreras Reyna, M.D.
Presidente

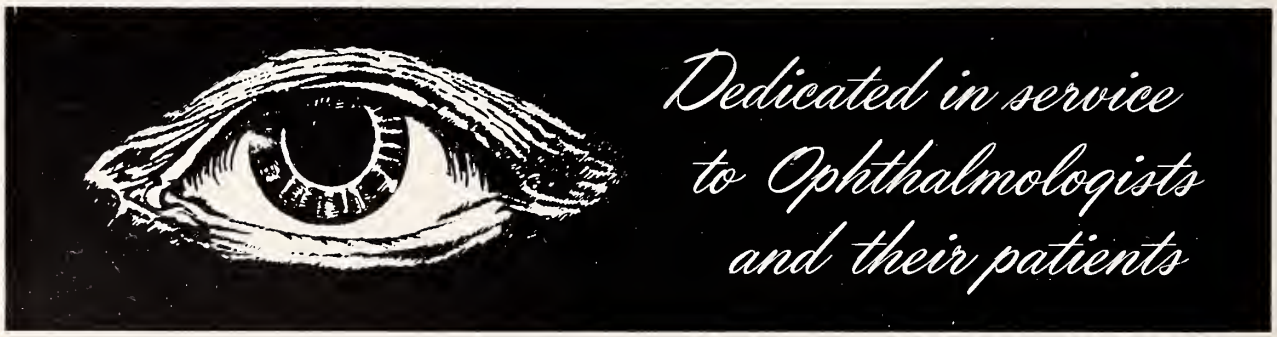
Fausto Zeron Medina, M.D.
Secretario

El sistema de traduccion bilingue, que tanto éxito ha tenido en congresos anteriores, se utilizará nuevamente.



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seem to crowd
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PHOENIX McLEOD OPTICAL

August 13, 1963

Dear Bob:

May I take this opportunity to express my thanks to you for your editorial in the August issue of *Arizona Medicine.*

It echoes my feelings and I am most pleased to find that this sentiment appears in print occasionally, since I feel that unfortunately thinking along this line seems to be decreasing as time goes on. I sincerely feel that some of the difficulties in which organized medicine finds itself these days would have been avoided had a philosophy based on the statement you use permeated more completely the thinking of the majority of physicians. Please accept my thanks for having expressed the idea so clearly.

Sincerely yours,

Robert Blake, M.D.
Tucson, Arizona

August 20, 1963

Dear Doctor Lorenzen:

I read your editorial in the August 1963 issue of *Arizona Medicine.* I simply wish to say that it was most refreshing to read this editorial.

It is always such a blessing when we realize that we pastors are not standing alone. So often it is made to appear that Religion is another one of the professions and the professionals are vending their wares. We too get the impression at times that many doctors forget God altogether. The truth is that those who do not trust Him speak louder than most of us who do still trust. We are often in the mood of Elijah who said "Lord, I even I alone am left who has not bowed the knee to Baal." The Lord informed him that beside him there were 7000 others who were faithful too.

Therefore may I say "Thank you for encouraging us preachers." It is good to know that we do not stand alone. It is also good for us preachers to recall the words of Ambrose Pareé. We would change them slightly and say, "I preached and God saved them."

Sincerely,

Erich A. Hoefer, Pastor
Abiding Savior Ev.
Lutheran Church
Scottsdale, Arizona

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Act of October 23, 1962, Section 4369, Title 39, United States Code)

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2. TITLE OF PUBLICATION: ARIZONA MEDICINE JOURNAL
3. FREQUENCY OF ISSUE: Monthly
4. LOCATION OF KNOWN OFFICE OF PUBLICATION *(Street, city, county, state, zip code)*: 4533 N. Scottsdale Rd., Suite 211, Scottsdale, Arizona 85252 (P. O. Box 128)
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS *(Not printers)*: Same
6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

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EDITOR *(Name and address)*: Robert F. Lorenzen, M. D., 550 West Thomas Road, Phoenix, Arizona 85013

MANAGING EDITOR *(Name and address)*: Paul R. Boykin, P. O. Box 128, Scottsdale, Arizona 85252

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(Signature of editor, publisher, business manager, or owner)

POD Form 3526 Aug. 1963

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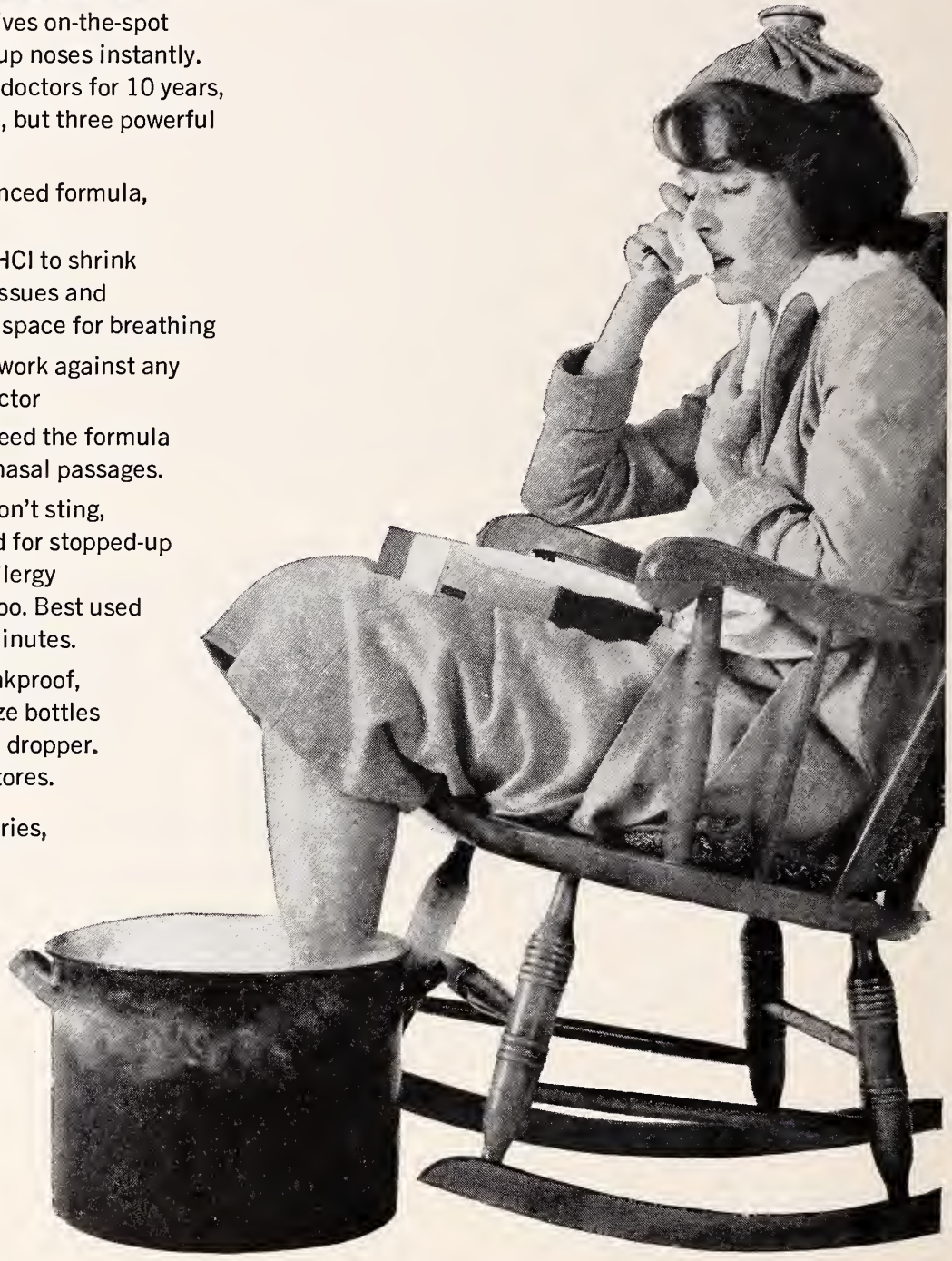
Thenfadil® HCl to work against any local allergic factor

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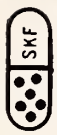
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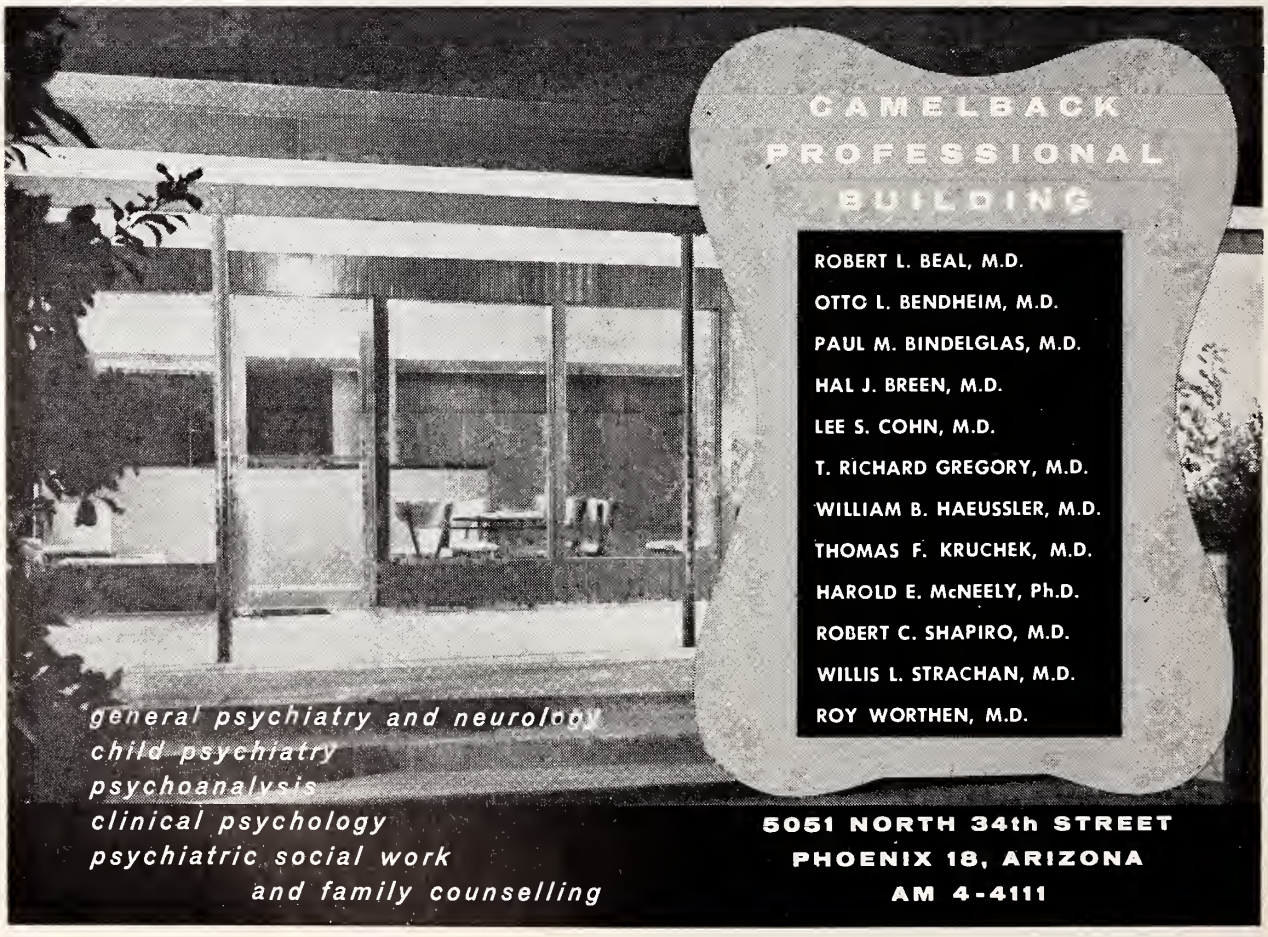
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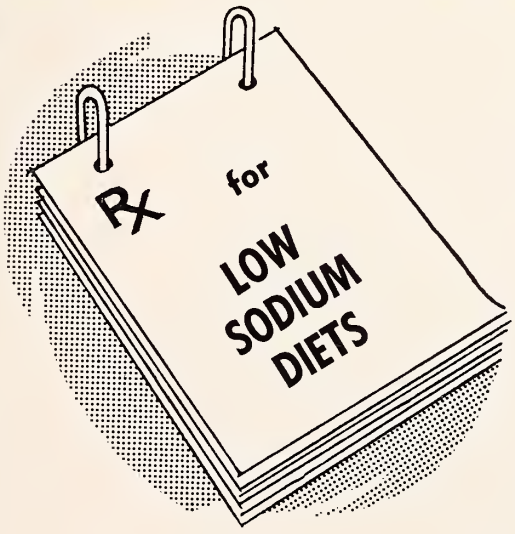
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Vol. 20, No. 12

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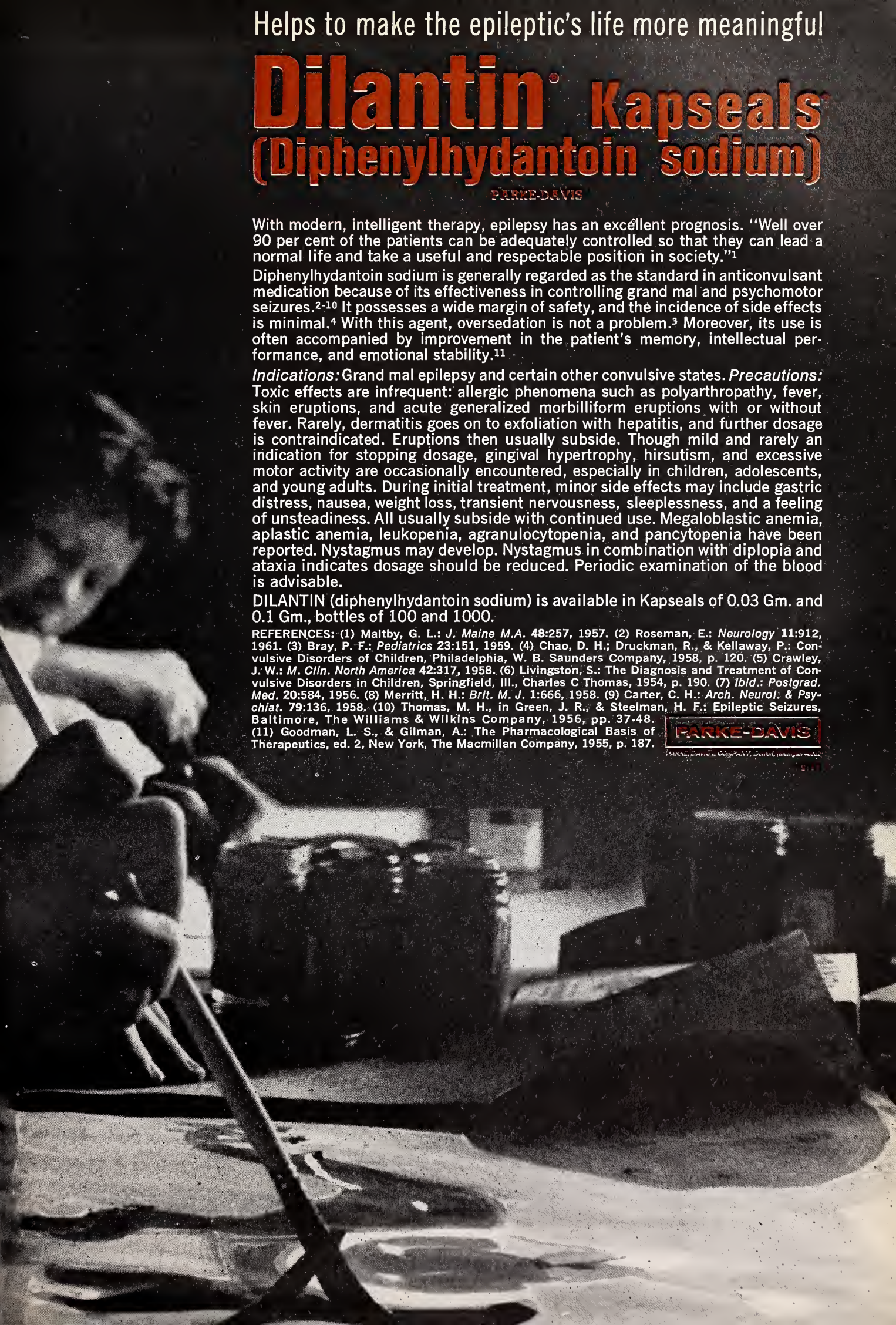
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SUPPLIED: Light-pink, scored tablets. Bottles of 50.

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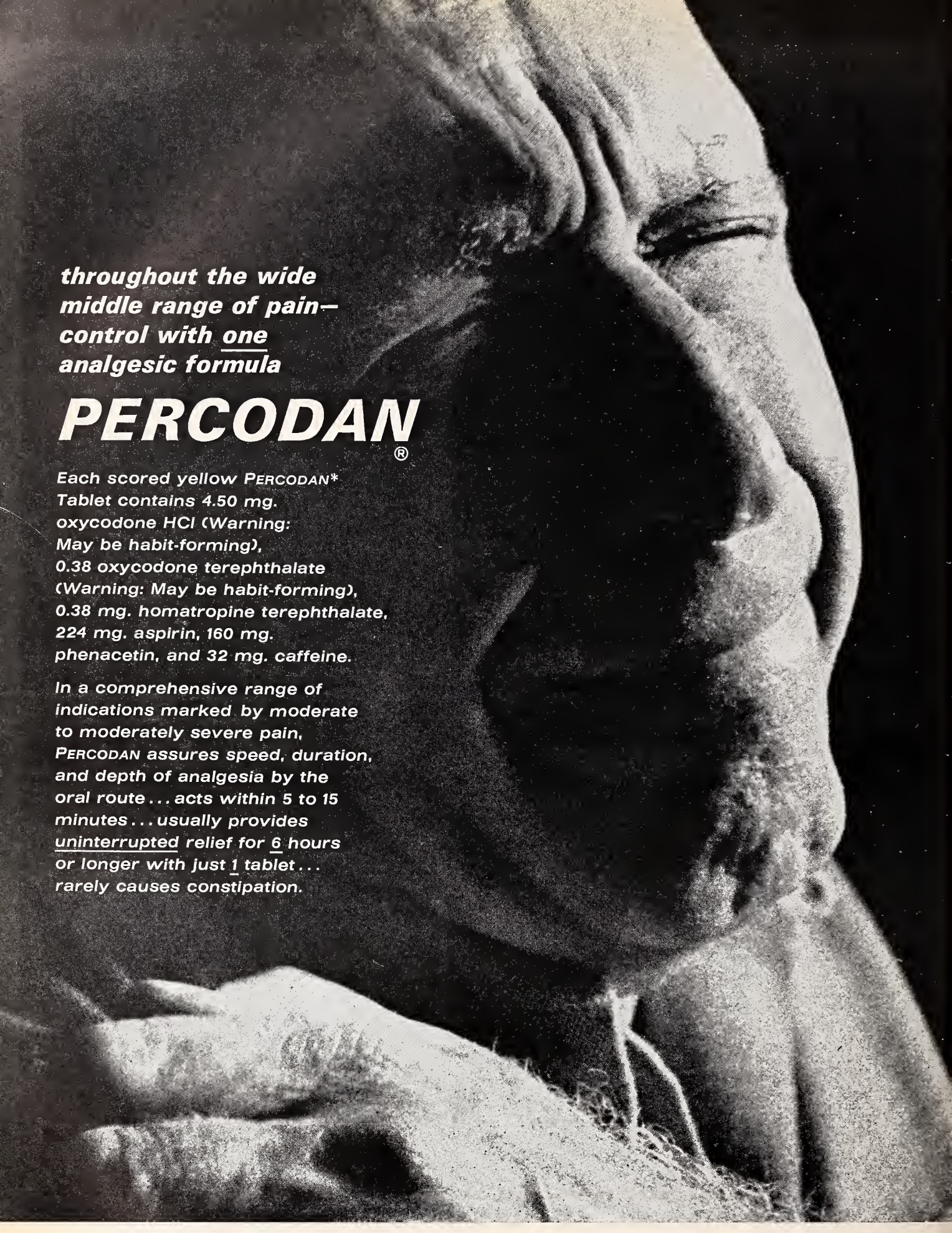
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SCIENTIFIC ASSEMBLY COMMITTEE

Meeting of the Scientific Assembly Committee of The Arizona Medical Association, Inc., held Sunday, October 6, 1963, in the Casa Grande Room of the Francisco Grande Motor Inn, Casa Grande, Arizona, convened at 10:20 A.M., W. Albert Brewer, M.D., President-elect, Chairman, presiding.

ROLL CALL

PRESENT: Drs. Brewer, W. Albert, President-elect, Chairman; Carlson, John S.; Eddy, Jr., Warren D.; Henderson, Charles E., Secretary; Jack, Jr., Ralph A.; Nelson, Arthur R.; Phillips, Melvin W.; Sattenspiel, Edward; Steen, William B., President.

STAFF: Boykin, Paul R., Assistant Executive Secretary; Carpenter, Robert, Executive Secretary; Ledwidge, Joseph A., Executive Assistant.

EXHIBITS

Scientific Exhibits

The committee received an expression of interest by the International College of Surgeons in presenting a scientific exhibit and request for information relative to making arrangements therefor.

It was regularly moved and carried that the International College of Surgeons be requested to forward to the Chairman, complete information relative to the exhibit and authorized his approved of the same.

In relation to the Aesculapius Awards Program for scientific exhibits, the committee received a communication from the Editor of Arizona Medicine, Robert F. Lorenzen, M.D., indicating he would publish a notice thereof in the Topics of Current Medical Interest section of the November issue of Arizona Medicine.

The committee expressed its appreciation and urgently requested Doctor Lorenzen to continue such notices in Arizona Medicine in a prominent place in the journal for the December and January issues.

The committee determined to correspond with all hospitals in the State having a Director of Training and Instruction, requesting their assistance and participation of interns and residents in preparation and presentation of scientific exhibits for the 1964 Annual Meeting.

Technical Exhibits

The committee reviewed a request from the Liggett and Myers Tobacco Company relative to an educational display on the results of a 9-year survey probing the biological effects of cigarette smoking.

It was regularly moved and carried that the central office develop through Liggett and Myers Tobacco Company, the detail relative to their proposed exhibit and that the Chairman, Doctor Brewer, make the final decision on acceptance or rejection of the exhibit following receipt of the information requested.

Commercial Exhibits

The committee reviewed the Prospectus for the 1964 Annual Meeting for the commercial exhibits and determined to commend the central office for the preparation thereof.

RECOGNITION OF DISTINGUISHED GUESTS

The committee approved the Chairman's recommendation that the following delineated persons be formally invited to appear before the first meeting of the House of Delegates of the 1964 Annual Meeting and introduced from the podium.

1. The President of the Woman's Auxiliary to the American Medical Association.

2. Mrs. Clare W. Johnson, President, Woman's Auxiliary to ArMA.

3. Mr. John Pompelli, AMA, Legislative Field Representative.

4. Merlin K. DuVal, Jr., M.D., Dean, Medical School, University of Arizona.

The committee approved the Chairman's recommendation that the following delineated persons be formally invited to appear before the general sessions of the 1964 Annual Meeting and introduced from the podium.

1. The Honorable Paul J. Fannin, Governor — State of Arizona.

2. The Honorable Ralph J. McKenzie, Mayor of Chandler.

3. The Honorable Barry M. Goldwater, United States Senator.

4. The Honorable Carl Hayden, United States Senator.

MEMORIAL SERVICE AND INVOCATION

The committee was informed that The Reverend Charles Ehrhardt, D.D., Pastor, The First Presbyterian Church, Phoenix, Arizona, will conduct the invocation and memorial service in the 1964 Annual Meeting. The Chairman requested the central office to issue a formal invitation to Doctor Ehrhardt.

SPECIALTY GROUP SECTION

It was reported that all specialty groups in Arizona had been issued invitations to participate in the specialty group luncheon section of the 1964 Annual Meeting. Response to date has been received from the Arizona Chapter — American Academy of General Practice (no speaker); The Arizona Society of Anesthesiologists (no meeting); and the Western Reserve Alumni Association (no meeting).

SCIENTIFIC PROGRAM

Scientific Sessions — Schedule

The following named guest speakers and tentative schedule for the scientific sessions was presented by the Chairman, Doctor Brewer, for the information of the committee:

Drs. James D. Barger, Murray L. Barr, Merlin Duval, Jr., Joseph D. Hardy, Joseph Harris, William M. Hindman, William J. Kolff, Orlando J. Miller, William R. Waddell, and Harry A. Waisman.

Guest Orator Sponorship

The Committee was informed by the Chairman that the National Vitamin Foundation had agreed to sponsor Harry A. Waisman, M.D., Professor of Pediatrics, University Hospitals, Madison, Wisconsin and it is hoped the Arizona Division of the American Cancer Society will sponsor Orlando J. Miller, M.D., of New York City.

Report received and approved.

SOCIAL AFFAIRS

It was reported for the information of the committee that the reception and Luau, in lieu of the Chuckwagon Dinner, is scheduled for Wednesday evening, April 29, 1964; and the reception and Shore Dinner, an addition to the program for this meeting, is scheduled for Thursday evening, April 30, 1964.

It was regularly moved and carried that the award presentations indicated following be made during the reception preceding the Shore Dinner on Thursday evening, April 30, 1964.

Golf Tournament Awards
Bowling Tournament Awards
Woman's Auxiliary Awards, if any
Mead Johnson Aesculapius Award
A. H. Robbins Co., Inc. — Community Service Award

President's Reception and Dinner Dance

The President's reception and dinner dance will be held Friday evening, May 1, 1964 at which time, awards will be limited to those for 50-Year Club recipients and the Past President.

SPORTS PROGRAM

The Chairman, Doctor Brewer, reported that Reginald J. M. Zeluff, M.D. had accepted the chairmanship of the Golf Tournament Committee for 1964. No action indicated.

The committee received a letter of acceptance from Charles E. Van Epps, M.D. and Gaylor E. Smith, M.D. as a committee of two, for the 1964 annual Bowling Tournament.

MEETING ADJOURNED AT 12:10 P.M.

Charles E. Henderson, M.D.
Secretary

BENEVOLENT AND LOAN FUND COMMITTEE

Meeting of the Benevolent and Loan Fund Committee of The Arizona Medical Association, Inc., held Thursday, October 24, 1963, in the central office, Suite 211, U-R Building, 4533 North Scottsdale Road, Scottsdale, Arizona, convened at 2:15 P.M., Daniel T. Cloud, Jr., M.D., Chairman, presiding.

ROLL CALL

PRESENT: Drs. Buffmire, Donald K.; Cloud, Jr., Daniel T., Chairman; Dudley, Jr., Arthur V., Treasurer; Henderson, Charles E., Secretary.

Messrs. Boykin, Paul R., Assistant Executive Secretary; Carpenter, Robert, Executive Secretary; Lewidge, Joseph A., Executive Assistant.

H. R. 12 — FEDERAL AID TO EDUCATION — LOAN PROGRAM

Considerable discussion was held on the subject of H. R. 12, adopted by the 88th Congress of these United States and signed by the President on September 24, 1963, the Public Law 88-129 entitled, "Health Professions Educational Assistance Act of 1963."

The principal review by the committee was toward Part C of the above named Law covering student loans and loan agreements and it was the consensus of opinion that at the time of appropriations being made by the United States Congress, effecting the Act, that there may not be a need for a loan program of and by The Arizona Medical Association, Inc.

It was regularly moved, seconded, and unanimously carried that this committee act upon those requests for loans currently up for consideration, effecting good faith toward the Valley National Bank efforts and that this committee appear as a body before the next meetings of the Executive Committee and/or the Board of Directors to seek their guidance and advice.

It was regularly moved, seconded and unanimously carried that further inquiries and applications received for consideration of loans from the Benevolent and Loan Fund Committee of The Arizona Medical Association, Inc. be alerted to the lack of funds at this time and referred to AMAERF.

OTHER BUSINESS

It was regularly moved, seconded and unanimously carried that no action be taken on the proposed resolutions to be prepared by the Treasurer, Arthur V. Dudley, Jr., M.D., recommended by the committee in its meeting held July 25, 1963, until a final determination on the entire program is completed, in view of the new Public Law 88-129 previously mentioned.

MEETING ADJOURNED AT 4:10 P.M.

Charles E. Henderson, M.D.
Secretary

PROFESSIONAL CARE

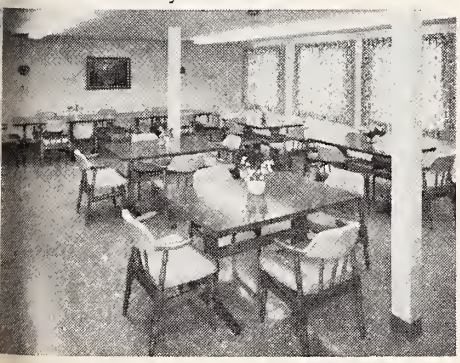
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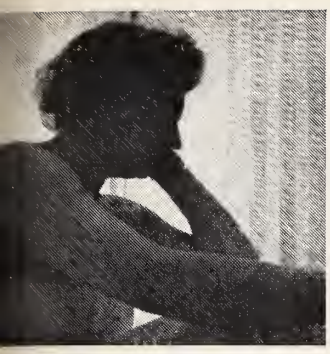
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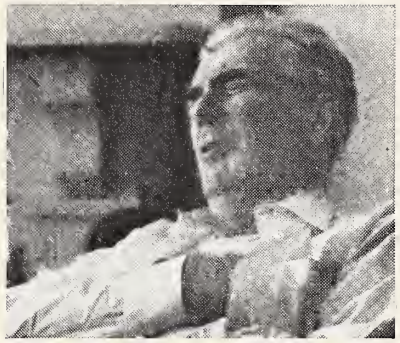
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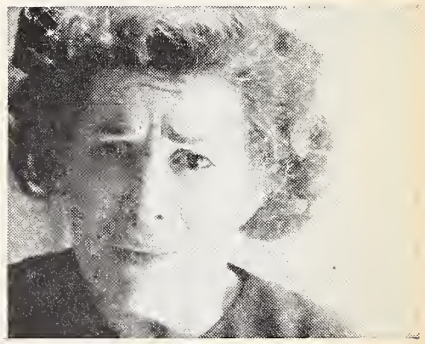
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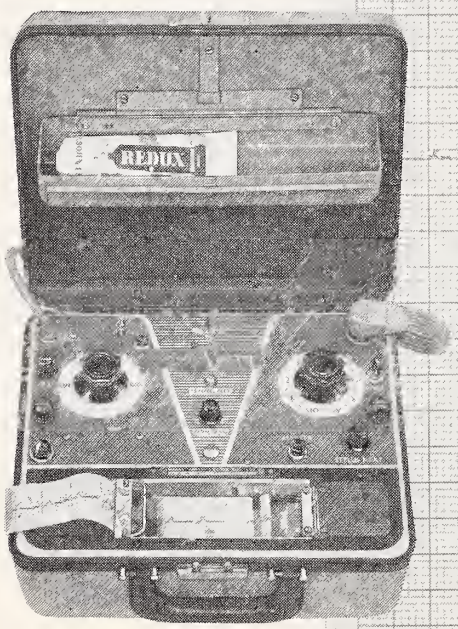
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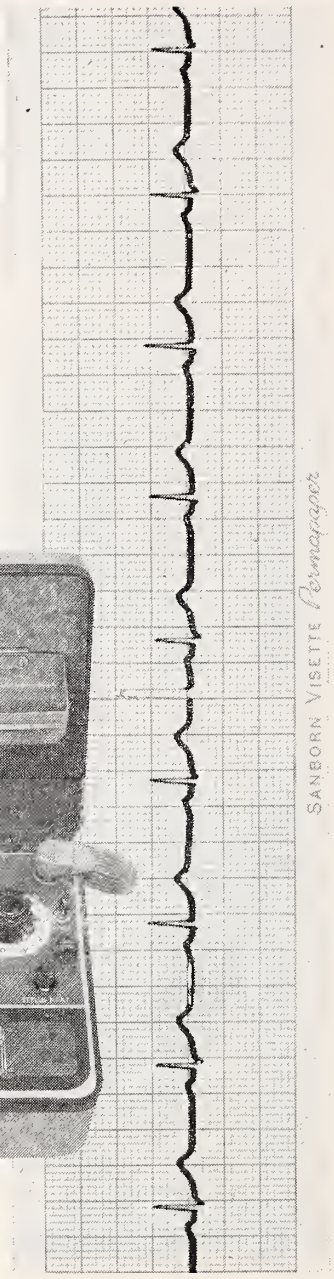


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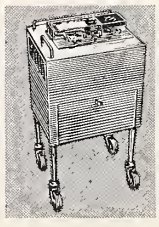
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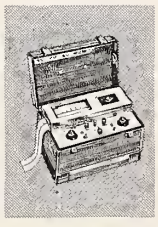




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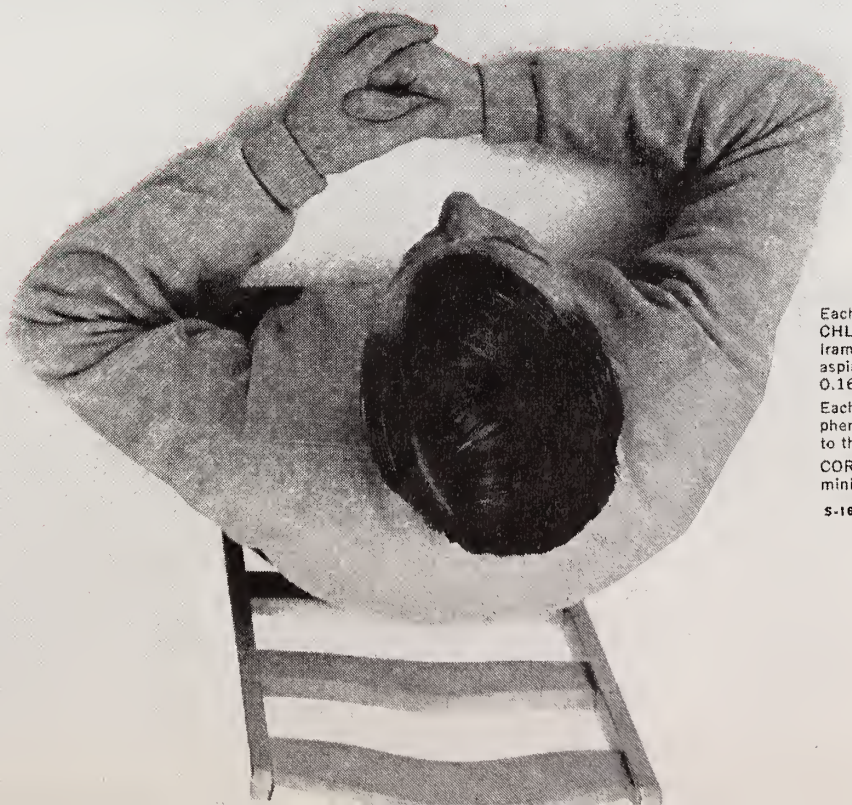
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Colon Atresia

A Case Report

by

Sherman W. Thorpe, M.D., F.A.C.S.

A good report of a rare anomaly. This is the 24th known survivor in the World Literature.

TO DATE, there are but twenty-four reported cases of colon atresia surviving surgical therapy(Table 1.). Because of the rare incidence of this malformation, and the difficult problems encountered in its diagnosis and treatment, the author feels justified in reporting this case.

INCIDENCE:

Exclusive of espohageal atresia and rectal atresia, the overall incidence of gastrointestinal atresia has been stated as roughly one case in twenty-to-forty thousand live births. Evans,[10] in an exhaustive review of the literature on atresia of the gastrointestinal tract, found a total of 1,948 cases, of which 139 were operated successfully. Six of these cases involved the colon. His studies indicated that an incidence of one per 1,500 live births was more in keeping with recent findings, and that four or five per cent of these involved the colon. If correct, this means that over 3,000 babies die of this malformation yearly in the United States, and probably over 50,000 in the rest of the world!

Presented at the Joint Meeting of the Phoenix-Tucson-Denver Surgical Societies, Scottsdale, Arizona, May 15, 1962.
1150 North Country Club Drive, Mesa, Arizona.

ETIOLOGY:

The exact cause is unknown. One theory is that of Tandler and Tyrell,[7] in which failure of recanalization of part of the gut tract occurs after the "solid phase" of bowel formation during the third to sixth week of gestation. A second, and prevailing theory, is that of vascular impairment due to accidents in rotation with resultant sites of constriction causing ischemia and lack of development. This theory applies best to areas of multiple atresia, as proposed by Louw.[27]

HISTORICAL:

Gaub,[15] in 1922 reported the first survivor of colon atresia, performing a proximal colostomy for a sigmoid colon atresia. Potts,[30] in 1947, reported the second survivor following a colocolostomy for an atretic portion of bowel of the mid-transverse colon. The remaining cases were performed during the last decade with primary repair being done with end-to-end, side-to-end, or side-to-side anastomoses. A few of these cases were corrected by staged procedures with diverting colostomies, spur-crushing techniques, etc.

CONGENITAL ATRESIA OF THE COLON

Author	Age & Sex	Site of Atresia	Surgical Treatment	Follow-up
Gaub 1922	33 hours Male	Sigmoid flexure	Colostomy at end of proximal loop	Doing well with dolosomy at age 3
Potts 1947	1 hour Female	Transverse colon	Side-to-side coloeolostomy in transverse eolon, bypassing atretie area	Good function at 18-days, verified by x-ray study. No further follow-up
Lemon 1948	1 hour Male	Cecum to splenic flexure	Side-to-side ileoeolostomy	Satisfaetory progress. Wt. 16½ lbs. at 9 mo.
Lee	3 days Male	Transverse colon	Closure of ceeal perforation, resection of atresia, side-to-side eolocolostomy	2 mo. - obstruction at anastomosis, eeeostomy, reseetion, narrowed segment and re-anastomosis. 4 mo. proximal eolon distended, wt. 15 lbs.
Jemson 1951	3 days Female	Ascending eolon	Side-to-side anastomosis	Doing well at age 6 months.
Gann 1952	62 hours ?	Sigmoid flexure	Side-to-side anastomosis	Not reported
Gross	?	Ascending colon		Not reported
Gross	?	Ascending colon		Not reported
Wilson	36 hours Female	Cecum and transverse eolon	Resection of gangrenous volvulus, segment extending from terminal ileum to sigmoid, with primary end-to-end ileosigmoidostomy	Normal growth and development and bowel habit at 18 months
Gerrish 1955	1 day Female	Sigmoid flexure	Resection of atretie area, end-to-end anastomosis and deeompressing tube eeeostomy	Not reported
Feggetter 1955	3 days	Sigmoid flexure	Primary transverse eolostomy, at 36 days side-to-side sigmoid anastomosis. 48 days: small bowel obstruction relieved. 55 days: reseetion of small bowel fistula, elosure of eolostomy	Not reported
Chester 1957	2 days Female	Transverse eolon	Primary transverse eolostomy, then ileoeolostomy of deseending eolon, with reseetion of right and transverse eolon at age 11 weeks	Normal growth and development and bowel habit at 4½ months
Siudmak & Regan	3 days Male	Aseending eolon	Reseetion of gangrenous ileoeeeal volvulus with double-barrel ileoeolostomy. 5th post-op day, spur-erushing elamp. 17th day post op., extraperitoneal elosure of bowel fistula. Age 6 weeks, obstruetion at anastomosis, reseetion and intraperitoneal re-anastomosis, end-to-end	Diarrhea and hypocaleemia for first few months. Normal at 13 months with 4 stools daily
Thorpe, S. W. 1958	7 days Male, 5 lb.	Sigmoid eolon (septate type)	End-to-end eoloeolostomy, decompressing tube eeeostomy	Normal at 3½ years of age
Armitage & Armitage 1958	52 hours Male	Sigmoid flexure	Double-barrel sigmoidal eolostomy. 38 days, end-to-end intraperitoneal anastomosis	Age 2, normal growth, development and bowel habits

CONGENITAL ATRESIA OF THE COLON

Author	Age & Sex	Site of Atresia	Surgical Treatment	Follow-up
Fox & Dvonch 1958	56 hours Male	Sigmoid flexure	Side-to-side primary anastomosis	10 mo., normal
Dalton 1958	48 hours	Mid-transverse colon to sigmoid	Right transverse colostomy	2½ mo., doing well with colostomy
Soave 1958	50 hours Male	Splenic flexure	Primary transverse colostomy. 3 mo., oil enemas to distend distal microcolon via anus. 1 yr., side-to-side anastomosis between transverse colon and descending eolon. 2 wk's later, closure of colostomy	Age 2½ years, normal
Rang 1959	1½ hours Male	Terminal ileum to mid-transverse colon	End-to-end ileocolostomy following resection of 15 em. of terminal ileum. Ruptured omphalocele during delivery, with volvulus and eviseeration of 30 cm. of ileum	Age 5 years, normal
Coryllos & Simpson 1959	4 days Female	Splenic flexure	Transverse colostomy primarily. 2 mo. colostomy dysfunction. 14 mo., excision of colostomy, end-to-side anastomosis between tranverse and descending colon, with proximal tube cecostomy. 1 mo. p.o., partial small bowel obstruetion and fecal mass obstruction, anastomosis. Relieved. Spontancous closure of cecostomy.	Age 19 months. Progressing well
Coryllos & Simpson 1959	18 hours Female	Hepatic flexure	End-to-end colocolostomy with proximal tube cecostomy. 7 days p.o., wound dehiscenee, wire elosure. Small cutaneous fistula from anastomosis, closed spontaneously, 30 days after original procedure	Age 5 months. Progressing well
Hardin & Friesen 1960	1 day Female	Right transverse eolon	No meconium, vomiting 6 hours, atresia of right transverse colon, with continuity and corresponding mesentery defect 1. Right transverse eolostomy, decompressing gastrostomy. 2. Reeurrent colostomy herniations. 3. At 26 days, end-to-end ileotransverse anastomosis. Colostomy, with reaetion of colostomy and right colon. Decompressing gastrostomy. Discharged on 19th post-operative day.	At age 1 year, normal growth, development and bone marrow
Hardin & Friesen 1960	4 days Female	Splenie flexure (septate type)	1. Double-barrel transverse colostomy for obstruction just distal to splenic flexure. 2. 1 year, eongenital diaphysis of eolon, complete. End-to-end anastomosis, with exeision of 3 cm. Colostomy left in place. 3. 6 weeks later, excision and closure of eolostomy, and end-to-end anastomosis of remaining transverse colon. Discharged on 9th postoperative day.	
Beau, Pregot, Masse 1960	4 days	Site ?	Repair ?	3-month follow-up

CLINICAL PICTURE:

The clinical picture is typically one of a simple mechanical obstruction, with vomiting occurring within the first two or three days of life, abdominal distension, depending upon the level of the atresia and the duration of symptoms, and little or scanty stool. If any stool is passed it is smaller in amount, drier in consistency, and a greyish-green color rather than the tarry appearance of normal meconium. As the picture continues there is progressive distension, dehydration, and later, perforation of the small or large bowel secondary to pressure ischemic necrosis.

With a competent ileocecal valve, atresia of the colon often presents the picture of a closed-loop obstruction with early gangrene and perforation of the cecum. Although these infants present normal vitality within the first two or three days of life, the process outlined then rapidly ensues, with electrolyte derangement, dehydration, and resultant toxicity from bowel ischemia, to final perforation and death. The mortality rate in all gastrointestinal atresias varies between 43 to 82 per cent according to Wilson.[40] Most deaths occur within the first week of life; although reports of survival to the ninth and tenth days have been recorded. After the fifth day survival is rare.

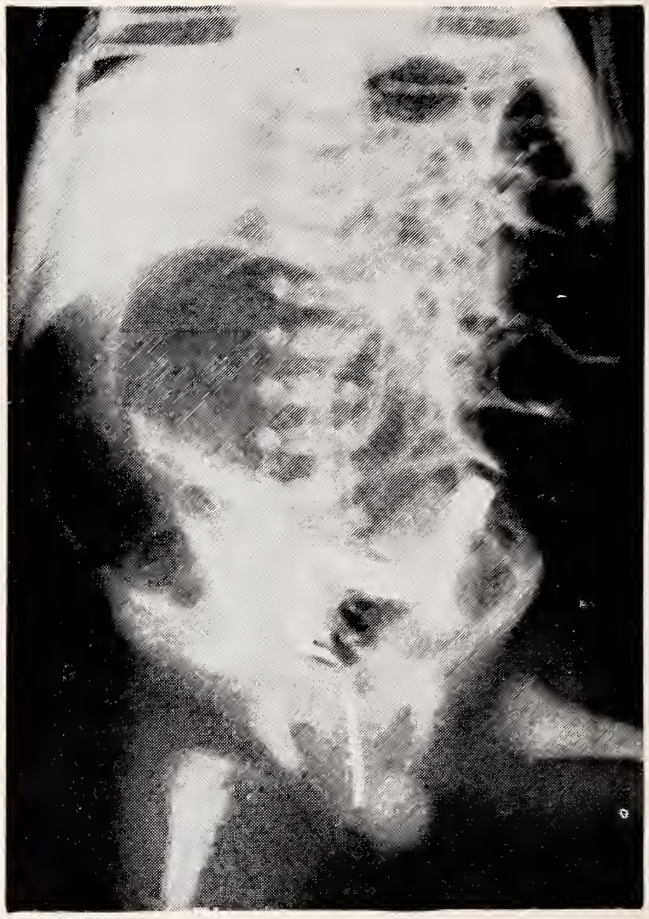


Figure 1.
Emergency barium enema x-ray.

DIAGNOSIS:

Flat plate of the abdomen reveals characteristic findings of a mechanical bowel obstruction. Emergency barium enema x-ray confirms the obstruction of the distal end of the colon; although this examination should be done with care. Rectal examination may reveal light meconium. The Farber[11] test, based upon the presence or absence of desquamated epithelial cells, is excellent for differentiating whether there is an atresia present, or rather, that the obstruction is due to stenosis, mucous plug, etc.



Figure 2.
Site of atresia found at surgery.

CASE REPORT:

The infant, (Hospital No. 43 888, Southside District Hospital, Mesa, Arizona) was a five pound, seven day old white male whose delivery and immediate postpartum course were normal. The history revealed a small meconium stool charted on day-one. Since discharge on the third hospital day the infant had no stools, nursed poorly, and exhibited progressive abdominal distension. The mother had given enemas without results. There was no history of vomiting, respiratory distress or unusual discomfort

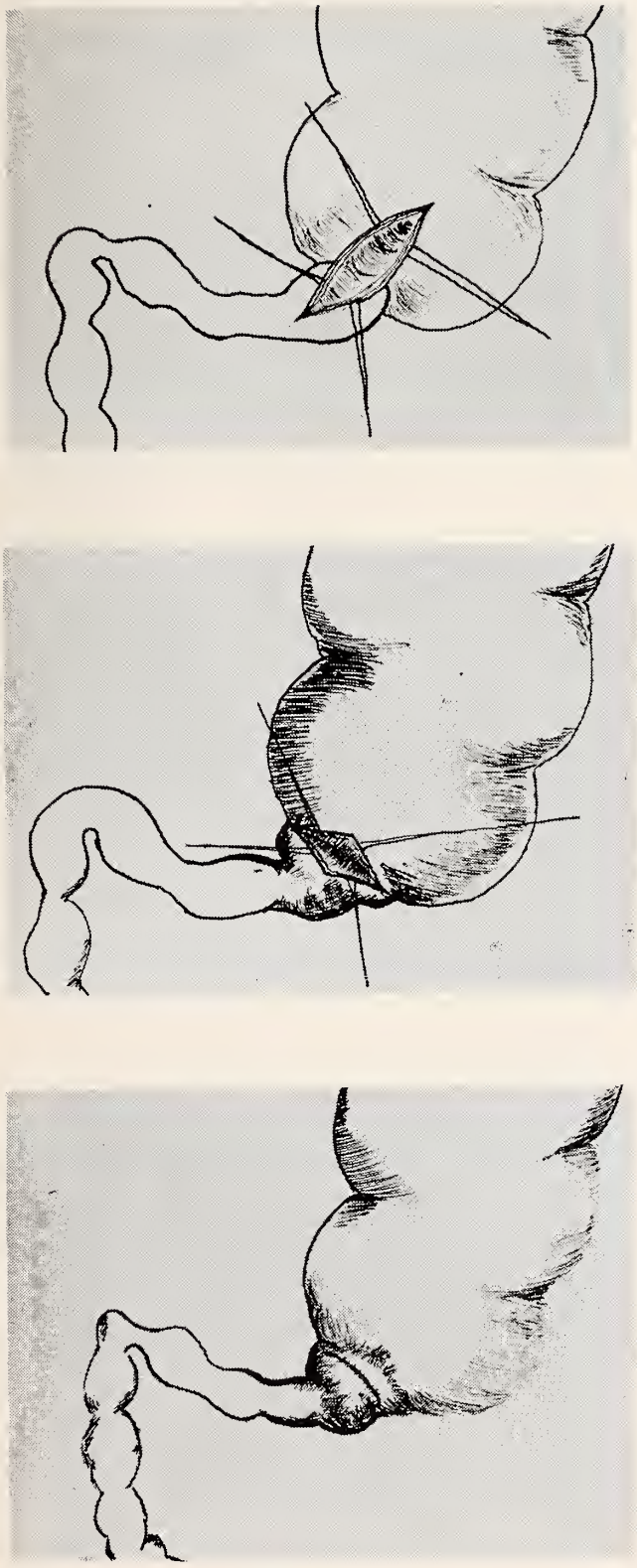


Figure 3-5.
Surgical procedure employed for repair of atresia of colon.

manifested by the infant to the day of readmission.

Physical examination was normal except for a markedly distended, tympanitic soft abdomen with active peristalsis. The rectal ampulla was empty. There was evident moderate dehydration and slight jaundice.

Emergency flat plate and upright films of the abdomen revealed markedly dilated loops of colon, with some dilatation of the small bowel. There was a large inverted "U" shaped loop of colon in the right lower quadrant directed upward and to the right suggesting the possibility of a volvulus. Emergency barium enema x-ray examination was done revealing a complete obstruction at the sigmoid colon (Fig. 1). The air-distended proximal descending colon was well outlined right down to the site of the atresia! The admitting blood count and urinalysis were normal. An electrolyte profile done on the first postoperative day was within normal limits.

The night of admission surgery was performed through a midline vertical incision and an atresia of the colon near the distal sigmoid was found (Fig. 2). Upon entry into the peritaneal cavity an extremely large dilated colon was delivered with contained gas and liquid fecal material. A straw-colored transudate was present, a culture of which later grew hemolytic staphylococcus albus, susceptible to Chloramphenicol and Erythromycin. There was one area of cyanosis of the distal transverse colon. The colon distal to the atresia was approximately 1 cm. in diameter.

A decompressiong cecostomy was performed with a No. 14 French catheter which remarkably reduced the size of the distended colon and dramatically improved the color of the distal transverse colon. Upon isolation of the site of atresia a longitudinal incision on the antimesentric border of the colon just proximal and distal to the site of atresia was made, and an end-to-end anastomosis was performed after the manner of a pyloroplasty using an interrupted row of No. 4-0 chromic catgut sutures for the musculomucosal layer and a row of No. 4-0 silk interrupted sutures for the seromuscular layer (Fig. 3-5). A catheter was passed via the rectum up to the anastomosis, proving patency of the bowel distal to the anastomosis. The cecostomy tube was brought out through a stab wound in

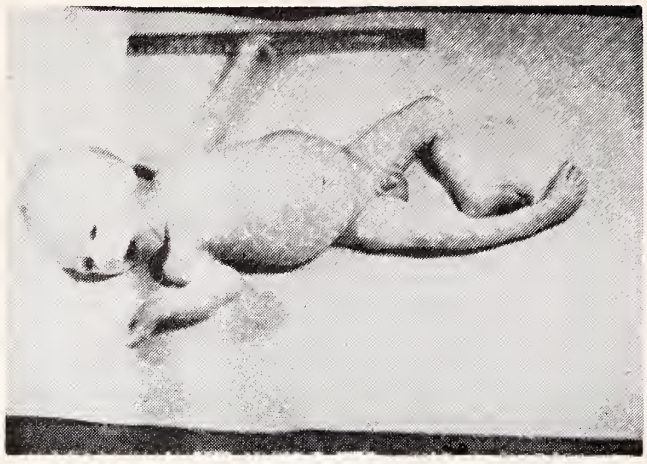


Figure 6.
Infant at 17 days of age.



Figure 7.
Child age 3½ years.



Figure 8.
Recent x-ray showing narrowed distal transverse colon.

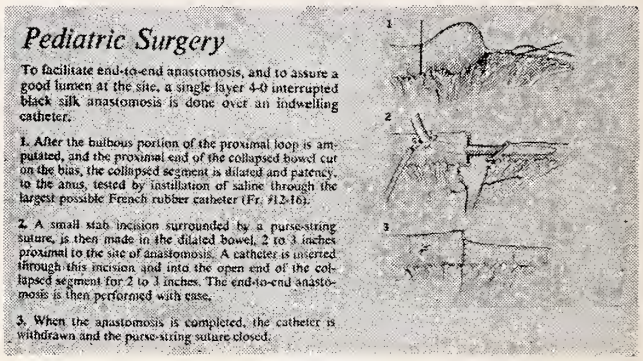


Figure 9.
Method of correction of bowel atresia after Coryllos.

the right lower quadrant for decompression purposes. Peritoneal lavage with sterile saline solution was done prior to closure, and 100,000 units of Crystalline Penicillin and .05 grams of Streptomycin in 50 cc's of sterile saline were left in the peritoneal cavity.

Postoperatively the infant was placed on nasogastric and cecostomy tube suction, given 25 cc's of whole blood, and a course of Penicillin, 100,000 units every 8 hours intramuscularly, Streptomycin, 60 mg. every 8 hours intravenously. Solu-Cortef was given, 25 mg. every 8 hours for twenty-four hours. Beta lactose water was given orally on the third postoperative day followed by milk feedings. The cecostomy tube was removed on the tenth postoperative day.

A common peroneal nerve palsy was noticed some three weeks postoperatively and has been well cared for by the neurosurgeons and orthopedic surgeons.

To date this child has exhibited normal growth and development, and enjoys a normal bowel habit at the present time (Fig. 6-7). Recent x-rays reveal some narrowing of the distal transverse colon in the same region, suffering the early vascular changes found at surgery (Fig. 8).

DISCUSSION:

In reviewing the literature it becomes obvious that the most desirable method of treatment is a primary repair of the defect with adequate proximal decompression. One fact peculiar to the repair in this situation is the functional obstruction that can occur at the anastomotic site if the terminal end of the proximal bowel is incorporated in the anastomosis. Luckily this did not happen in the case herein presented. It has been postulated that, because ischemic changes most frequently occur in the proximal bowel, and are most dominant at the terminal end of the blind loop, resulting in a Hirschsprung-type malfunction, this area should be resected, and then an anastomosis to the distal bowel be completed (Fig. 9).[7] Proof that the bowel distal to the site of anastomosis is patent must be obtained because in some five to ten per cent of these cases there is more than one site of atresia.

SUMMARY:

1. Pertinent factors involving the diagnosis and management of atresia of the colon have been reviewed.
2. A case of colon atresia, with a three and one-half year follow-up, is recorded.
3. Colon atresia is a rare anomaly, this being the twenty-fourth known survivor in the World Literature.

ACKNOWLEDGEMENT:

The author expresses gratitude to those who contributed so much to the over all management of this child, especially to John K. Kerr, M.D., pediatrician; E. Lawrence Ganter, M.D., radiologist; Clair E. Troutman, M.D., anesthesiologist; and the pediatric nursing staff of Southside District Hospital.

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Viral Hepatitis

The Communicable Disease Center, Public Health Service,
U. S. Department of Health, Education and Welfare
Atlanta, Georgia

During the past twenty-five years, two types of viral hepatitis have been differentiated from other diseases associated with jaundice. Infectious hepatitis is attributed to a virus or viruses known as Virus A; the disease known as serum hepatitis is thought to be caused by a virus or viruses designated as Virus B. These two diseases are quite similar, both as to pathology and in their clinical picture. In infectious hepatitis the route of infection is usually oral, but may be parenteral. The incubation period of infectious hepatitis ranges from 10 to 50 days. Serum hepatitis is transmitted only by injection of blood, blood products or through syringes and needles contaminated and improperly sterilized. The incubation of serum hepatitis ranges from 60 to 160 days. Human beings are the only known reservoir of both infectious and serum hepatitis.

Contacts of patients with infectious hepatitis may be protected by gamma globulin; this measure does not appear to be effective in the case of serum hepatitis.

VIRAL HEPATITIS

VIRAL hepatitis is a term used to describe two infectious processes of the liver known as infectious hepatitis and serum hepatitis. During the course of this discussion we will attempt to point out those features of these two diseases that are of interest and importance to public health workers.

Infectious hepatitis has been known to medical science for many years. It was first recognized and described by Hippocrates in the 2nd Century, B.C. Outbreaks of jaundice described as catarrhal or camp jaundice, have occurred among troops engaged in military operations during a great many major and minor wars. Its occurrence was recorded during the Napoleonic Wars, during the American Civil War, the Boer War and during World Wars I and II. It has been responsible for considerable illness and loss of duty time among troops. At times it reached such high incidence that it affected military operations. For example, Dr. Joseph Stokes of the Childrens' Hospital in Philadelphia has said that the effectiveness of Field Marshal Rommel's Africa Corps in World War II was limited by the high incidence of hepatitis among his troops. Almost ten per cent of his troop strength was out of action at all times because of infectious hepatitis. American troops in this theatre of war had a similar experience.

During the past century, infectious hepatitis has been recognized both in military and civilian populations as an epidemic and endemic disease with four to five year cyclic peaks of increased incidence.

Serum hepatitis was first recognized as a disease entity during World War II. In February of

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1942, an increased incidence of jaundice was observed in the United States Army. It soon became evident that a large scale epidemic was in progress. The total number of cases is not known exactly, but medical authorities have estimated that approximately 49,000 cases occurred. An intensive epidemiologic study related these cases to inoculation with yellow fever vaccine. The yellow fever vaccine in use at this time contained small amounts of human serum. Apparently some of this serum had come from persons carrying the causative agent of serum hepatitis. The agent distributed through these lots of vaccine was responsible for the large scale epidemic.

The medical literature was studied intensively to determine whether any similar outbreaks in the past had been associated with the use of human serum or other blood products. In retrospect, it was possible to identify a number of reported outbreaks as serum hepatitis. One of the earliest occurred in the latter part of the 1800's among persons inocuated with a smallpox vaccine containing human serum.

Since the large scale outbreak in World War II, serum hepatitis has commanded intensive interest. The disease has been recognized frequently in persons receiving whole blood and blood products and in those who have undergone medical surgical procedures. In the latter case, the infection was transmitted by needles, syringes, or other instruments that had been contaminated with human serum during earlier use and had not been properly sterilized.

DURING the past 20 years, the two types of viral hepatitis have been clearly differentiated from other diseases associated with jaundice. These other diseases are leptospirosis, yellow fever, chemical poisoning, etc.

The causative agents of viral hepatitis are presumed to be two separate viruses or two separate groups of similar viruses. The disease known as infectious hepatitis is attributed to the effects of a virus or viruses known as Virus A; the disease known as serum hepatitis is attributed to the effects of a virus or viruses designated as Virus B.

The pathologic picture of both types of hepatitis is similar to other diseases caused by viruses. The primary effect is the destruction of individual cells. In this case, the cells affected are those of the liver. The severity of the disease is directly related to the amount of damage to the liver tissue, which also determines whether or not the patient will show clinical jaundice. In both of these diseases jaundice is a result of the inability of damaged liver cells to excrete bilirubin into the bile duct. This loss of excretory power results in retention of bilirubin in the circulating blood and causes a yellow color of the skin, loss of color in the stool (clay colored stools), and excretion of bilirubin through the kidney giving rise to dark colored urine. The signs and symptoms associated with both types of hepatitis are related to the loss of normal liver functions as well as to general viremia. These include a delay in the clotting time of the blood, a fall in the number of circulating white blood cells, derangement of the metabolism of fat and loss of the ability to detoxify various chemical substances in the liver.

THE extent of liver damage in these diseases is variable, ranging from destruction of small numbers of liver cells to rapid destruction of almost all of the liver. If damage to liver cells is slight, few or no symptoms occur. Rapid destruction of the liver is called acute yellow atrophy or fulminating hepatitis and is a fatal disease.

Recovery from hepatitis occurs through the regeneration of liver cells. If the disease is mild with little damage to the liver, regeneration is usually complete and there is complete recovery of liver function. If, on the other hand, severe destruction of the cells occurs, regeneration may fail and the cells may be replaced by fibrous tissue resulting in chronic cirrhosis of the liver.

Infectious hepatitis and serum hepatitis are diseases of similar nature, but each has certain characteristics which are useful in distinguishing between them. In infectious hepatitis the route of infection is usually oral but may occasionally be parenteral. The causative agent has not been identified but its presence has been demonstrated in both the blood and feces of patients suffering from infectious hepatitis. The incubation period of infectious hepatitis ranges from 10 to 50 days. The onset of the disease is usually abrupt and is accompanied by fever and frequently a chill. Various tests that measure liver function show abnormality after the onset of symptoms. The serum bilirubin, icteric index, cephalin floccoulation, bromsulfalein excretion, serum transaminase, and urine bilirubin and urine urobilinogen tests are among those com-

monly used to measure liver function. In almost all cases of infectious hepatitis results of the thymol turbidity and flocculation tests are abnormal after about the tenth day of illness.

In contrast with infectious hepatitis, which may be transmitted orally or parenterally, serum hepatitis is transmitted only by parenteral means. The causative agent has been demonstrated in the blood of infected patients but not in the feces. This disease has an incubation period that is considerably longer than that of infectious hepatitis. It may range from 60 to 160 days. The clinical onset is insidious and is accompanied by low grade fever, but not by a chill. Results of liver function tests are abnormal as they are in infectious hepatitis, but in serum hepatitis they may become so before the onset of clinical symptoms. In contrast with infectious hepatitis, results of the thymol turbidity and flocculation tests may be negative or only weakly positive.

INFECTIOUS hepatitis and serum hepatitis are not easily differentiated clinically since they have a number of symptoms and signs in common. Both diseases are characterized by disturbances of the gastrio-intestinel system—chiefly loss of appetite, nausea, and vomiting. Also characteristic of both diseases are headache, lassitude, malaise and generalized aching. Physical examination may show enlargement of the spleen and tenderness in the right upper quadrant of the abdomen. Dark urine and light or clay colored stools are common to both. Jaundice is the most characteristic feature of viral hepatitis, but it may not be present in all cases of infectious hepatitis.

Infectious and serum hepatitis differ somewhat in clinical severity. Infectious hepatitis tends to be a milder disease and of shorter duration than serum hepatitis. This is particularly true in children. Many cases of infectious hepatitis show all the clinical characteristics of this disease, except jaundice. Serum hepatitis is usually more debilitating and runs a longer course than infectious hepatitis. The principle reason for this is that serum hepatitis most frequently occurs in patients who are already under treatment for an existing illness during which they have received blood or blood products or have been subjected to surgical or medical treatment, and so become infected with serum hepatitis.

Serum hepatitis tends to have a higher case fatality rate than infectious hepatitis. However, the case fatality rate for serum hepatitis in previously healthy troops who had contracted the disease through vaccination during World War II was approximately the same as that for infectious hepatitis. Therefore, we can assume that the higher case fatality rate for serum hepatitis in the civilian population is due to the accidental superimposing of infection on patients who are already suffering from some other disease.

BOTH types of viral hepatitis must be distinguished from other diseases in which jaundice is part of the clinical picture, such as Weil's disease or leptospirosis, yellow fever, chemical poisoning with destruction of liver tissue, jaundice due to obstruction of the common bile duct, and hemolytic jaundice. No specific test available will give a definitive diagnosis of viral hepatitis. The diagnosis is made on the basis of the clinical – epidemiologic picture and the exclusion of other diseases which affect the liver. The various liver function tests are useful in demonstrating the extent of liver damage and in distinguishing viral hepatitis from obstructive and hemolytic jaundice.

Most of the current knowledge of viral hepatitis has been acquired through epidemiologic study. We have found that the epidemiology of serum and infectious hepatitis is quite different. The causative agent for infectious hepatitis has not been identified. On the basis of the existing evidence, it is assumed that infectious hepatitis is caused either by a single virus or a group of related viruses. No bacteria have ever been identified as causing this disease and the stools and blood of infected patients remain infective for other persons even after they have been passed through a filter which would exclude bacteria. Attempts to isolate the agent of infectious hepatitis in laboratory animals have been unsuccessful. Apparently none of the commonly used laboratory animals can be infected with this agent. Efforts are being made at the present time to isolate the agent by utilizing tissue culture techniques in a variety of different cell types. If these efforts prove to be successful, we will be able to determine the identity and nature of the causative agent and whether it is a single virus or a group of viruses.

As far as we know, the only reservoir of the agent of infectious hepatitis is the human being. Although the clinical case of infectious hepatitis is the most obvious reservoir, others also exist.

The convalescent patient may continue to pass the agent in his stool for an appreciable length of time. We have also mentioned that jaundice does not always occur and the diagnosis of infectious hepatitis may be missed. These cases are very effective reservoirs of the disease because they are active and have many contacts with susceptible persons. The patient with obvious jaundice, of course, is usually isolated and recognized as a potential source of infection. Therefore, he does not have as much contact with susceptible persons as those who have milder, undiagnosed cases without jaundice. The only means we have of recognizing the virus at the present time is through human volunteer studies in which susceptible persons are fed infective material from cases of infectious hepatitis. Therefore, we have little data on how long the infected person continues to shed the virus. In one series of these human volunteer studies, the agent was shown to be present as long as 15 months after the patient became ill. In most cases, however, it is probably not shed for such a long period of time.

AS WE mentioned, the agent of infectious hepatitis has been shown to be present in the feces and blood of the patient with this disease. It follows therefore that transmission of this disease must occur either through ingestion of fecal material by susceptible persons or through the reception of infected blood from patients suffering from the disease. Transmission through infected feces may be either direct or indirect. Direct transmission involves person to person contact with hand to mouth passage of the agent. This type of transmission is most common among children and inmates of mental institutions where standards of personal hygiene are low.

Indirect transmission of the disease may occur through contamination of a vehicle which will carry the infection to a susceptible person or persons. These vehicles are similar to the ones involved in the transmission of typhoid fever, salmonella infections, staphylococcal intoxication, etc. They include uncooked foods in which the virus is not exposed to destruction by heating. Milk, for example, has occasionally been involved. Recent outbreaks of hepatitis have occurred in this country and Sweden among persons consuming raw shellfish which were taken from fecally polluted waters. Individual or community water supplies which are contaminated with sewage and not adequately treated can also serve as a source of transmission.

Infectious hepatitis may also be transmitted in the same way as serum hepatitis by introducing the virus into the victim's body through transfusion of blood from an unsuspected case of infectious hepatitis or by using surgical instruments, hypodermic needles, syringes, intravenous tubing, dental instruments, etc., which have been contaminated with blood from an infected patient and have not been sufficiently sterilized. In immunization or treatment clinics if the same syringe is used for a number of injections the barrel may become contaminated and transmit the virus even when the needle is changed for each patient.

Infectious hepatitis follows a definite pattern of seasonal occurrence. While cases of infectious hepatitis may occur throughout the year, there is a definite increase in incidence in late autumn and the peak number of cases occur in early winter.

Infectious hepatitis is most frequently seen in younger persons. Most of the cases occur in people under 20 years of age.

All races are apparently equally susceptible to infectious hepatitis. Differences in incidence between white and non-white individuals may appear to exist. This is not due to a difference in racial susceptibility but is due to other factors. It is more difficult to diagnose infectious hepatitis in dark skinned persons since it is more difficult to detect jaundice in this group. In some areas of the country non-whites live under lower socio-economic conditions than whites and may acquire thier infection earlier in life. In the youuger age group the disease tends to be milder and jaundice is much less prominent in the mild cases so that these cases are frequently not diagnosed. Another factor which operates in this situation is that the disease may be acquired at such an early age that the child is still under the protection of antibodies acquired from the mother which prevent the development of clinical disease.

MALES and females are equally susceptible to infectious hepatitis and there is no difference in the incidence of this disease from one part of the country to the other.

The epidemiology of serum hepatitis is less well known than that of infectious hepatitis. This disease has only been recently recognized,

it is less common, and has a longer period of incubation. It is therefore more difficult to study than is infectious hepatitis. The causative agent of this disease has characteristics similar to those of the agent that causes infectious hepatitis. This agent has not been demonstrated in laboratory animals — it does not infect them. However, it has been demonstrated by administering blood from infected patients to human volunteers. Current efforts are being concentrated on isolating the agent by using tissue culture techniques employing a variety of cell types.

As with infectious hepatitis, the only known reservoir of serum hepatitis is the human being. We recognize as reservoirs the known case of serum hepatitis. It is also apparent that the agent is carried by persons who are recovering from the disease, and it is quite possible that the virus is carried for long periods of time by persons who have no symptoms. When the causative agent of this disease is isolated we will be able to develop specific laboratory tests that will enable us to define the human reservoir more completely.

The only known means of transmitting serum hepatitis is by injection of infected blood or blood products into a susceptible host. Pooled plasma has been a source of a number of individual cases, as well as outbreaks, of serum hepatitis. If one of the persons contributing plasma to the pool is a carrier of the causative agent of serum hepatitis, a large amount of plasma can be contaminated and the entire lot of plasma can cause cases of serum hepatitis. We mentioned earlier that human sera have been used at various times in vaccine products and these have been responsible for outbreaks of serum hepatitis. Typical of these are the yellow fever vaccination outbreak during World War II and the outbreak in Germany in the 19th Century following the use of smallpox vaccine. This disease has also been transmitted by medical and surgical instruments, hypodermic needles, syringes, intravenous tubing, tattooing needles, and dental instruments. It is common among narcotic addicts who share the use of syringes. In all instances these transmitting objects have been contaminated with serum from infected patients and have not been completely sterilized. Another source of infection has been in immunization or treatment clinics where a single syringe has been used for a number of patients even though individual sterile needles are used for each patient. Transmission under these circumstances is caused by contamination of the syringe barrel with serum from an infected patient.

Serum hepatitis has no definite pattern of seasonal distribution and there is no difference in racial or sexual susceptibility.

WHILE infectious hepatitis is primarily a disease of people under 20 years of age, serum hepatitis is most commonly seen in adults. This is because of the mode of transmission for the disease. Adults are more likely to be under medical or surgical treatment and are much more likely to receive blood or blood products, or to be subjected to other infecting procedures. Because the agent or agents that are responsible for these two diseases have not as yet been isolated and identified, the immunology of these diseases is not completely worked out. Human volunteer studies and epidemiologic observation have led to the assumption that one attack of infectious hepatitis produces lasting, probably life-time immunity, to reinfection with infectious hepatitis. This is also thought to be true of serum hepatitis. Infection with serum hepatitis does not protect against infection with infectious hepatitis, nor does infection with infectious hepatitis protect against serum hepatitis. This indicates that the agent responsible for these two diseases differ immunologically.

Prevention and control of viral hepatitis is based on the knowledge that we have acquired through epidemiologic study of these two diseases. For infectious hepatitis we have a number of measures which are more or less effective in preventing transmission of this disease. The first measure that can be used to control the spread of infectious hepatitis is isolation of the known case. Persons with this disease should be isolated for at least one week after the onset of the disease. During the time that they are isolated, the fecal material from the infected patient should be disposed of in a sanitary manner and those who attend the patient should be especially careful to practice good handwashing techniques after attending the patient. Care should be taken to sterilize all instruments used for injections, intravenous administrations, etc., to the patient.

Contacts in the household of the patient can be protected from infection by the use of gamma globulin to provide passive immunity to the disease. Gamma globulin will be effective in preventing disease if it is given at least six days be-

fore the onset of clinical symptoms. Early diagnosis of infectious hepatitis is extremely important, and it is equally important that cases of the disease be reported promptly to public health authorities so that household contacts may be given gamma globulin in time to prevent their contracting infectious hepatitis. A number of studies are currently under way to determine the most effective dose of gamma globulin for the prevention of infectious hepatitis. The dose usually recommended is .01 ml. per pound of body weight.

INDIRECT transmission of infectious hepatitis is prevented by the same measures which have been so effective in preventing the transmission of other food and water borne diseases. These include, first of all, the proper disposal of all fecal material through utilization of approved sewage disposal methods. These methods do not remove the virus from the sewage but proper sewage disposal prevents the reingestion of this infected material. Proper treatment of water supplies for individuals and communities is important in preventing the transmission of this disease. Our present knowledge on this subject indicates that filtration and adequate chlorination of water have virus inactivating properties. Employees of food handling estabishments must practice good sanitation and good personal hygiene to prevent food borne transmission of infectious hepatitis. Persons who are suffering from jaundice should not be permitted to handle or prepare food. It is important that both the management of food handling establishments, and the individual food handler, be aware of this fact. Shellfish that come from waters known to be contaminated with sewage should neither be consumed nor be sold for consumption.

The parenteral transmission of infectious hepatitis can be prevented by the proper sterilization of instruments, needles, syringes, etc. Blood donors should be routinely screened for history of jaundice and should be examined for jaundice before giving blood.

As we have indicated, there is no specific laboratory test that will give a definitive diagnosis of infectious hepatitis. However, there is one test of liver function which is particularly sensitive to this disease the serum glutamic oxaloacetic transaminase test, (commonly referred to as the transaminase test). Although this test is difficult to perform and usually is not available in all laboratories, it does detect liver damage at an early stage of the disease, and can be used to screen close contacts of known cases of hepatitis. It enables us to identify those cases which are not jaundiced or which might otherwise be missed, and therefore be capable of serving as dangerous reservoirs of infection.

The prevention of serum hepatitis is similar in some respects to the prevention of infectious hepatitis. It also is based on what we have learned by studying the epidemiology of the disease. If a patient is known to have serum hepatitis, isolation is not indicated. However, in the absence of definitive diagnosis, it is best to isolate the hepatitic case on the assumption that it is infectious hepatitis.

There is no indication that gamma globulin is effective in preventing serum hepatitis. Since there is no particular danger of secondary cases occurring in the households of persons who have serum hepatitis, contacts of patients who are known to have serum hepatitis should not be given gamma globulin.

The most important preventive measure in the control of serum hepatitis is stopping parenteral transmission. Any instrument that is likely to have been contaminated with serum must be properly sterilized. This would include needles, syringes, dental and surgical instruments, intravenous tubing, tattoo needles, etc. All blood donors should be screened for a history of jaundice and examined for existing jaundice. Whenever possible disposable intravenous tubing should be used. In immunization and treatment clinics, a syringe and needle should be sterilized after being used on one patient. There is some indication that the transaminase test might be useful in detecting carriers of serum hepatitis virus.

MANY attempts have been made to inactivate hepatitis virus in pooled plasma. The only measure that appears to have been effective is the storing of plasma for long periods of time, (six months or more), at room temperature or above. When plasma must be used, plasma that has been so treated is safest. But the best procedure is to use plasma substitutes whenever possible.

There is still a great deal that is not known about viral hepatitis. Much of what we need to know about these diseases awaits the isolation of the causative agents and the development of specific diagnostic tests. Until then we must work with the knowledge that we have gained through epidemiologic studies.

Disseminated Coccidioidomycosis Occurrence in Patient Receiving Steroid Therapy for Rheumatoid Arthritis — Case Report

by

Walter T. Hileman, M.D.

This excellent case report, stressing the apparent rarity of coccidioidal dissemination in patients undergoing steroid therapy, should have a reassuring effect in the Southwest.

THIS case presentation records the third published occurrence of fatal coccidioidomycosis complicating prolonged intensive steroid therapy. It demonstrates a dilemma, from the horns of which dangle many Arizona physicians.

Case Report: Mrs. V.L., female tutor, 59, a resident of Tucson for 20 years and victim of rheumatoid arthritis for 27 years, entered St. Mary's Hospital on 6-25-62. Pain above the left knee following a fall from her wheel chair three or four days earlier was the presenting symptom. Recent anorexia, chest pain, slight dyspnea, and vertigo were elicited on further questioning. Vital signs were: temperature 101.6 degrees, pulse 120, respirations 28, blood pressure 90/58. The day following admission the temperature spiked to 103.6 degrees and 24 hours later reached 104.4 degrees. It decreased to 102 and 103 degrees on the next two days. On the fourth hospital day the patient expired.

Pertinent past history included the onset of rheumatoid arthritis 27 years earlier, with remissions and exacerbations but overall relentless progression of disease to involve all peripheral joints, until during the past several years the patient was unable to walk. Successful surgery for glaucoma of left eye in 1948 had been followed with later development of a cataract. While on steroid therapy, gastrectomy and vagotomy had been done for bleeding gastric ulcers in 1960.

History of steroid therapy: From 1950 until February, 1961, the patient had taken 10 milligrams of Metacorten daily. This was reduced to 5 milligrams daily from 2-13-61 through 5-28-61 when it was discontinued. ACTH was given subcutaneously in 10 unit doses between 7-16-60 and 4-7-61 and in 20 unit doses twice weekly from 4-7-61 to 5-5-61. 40 units of ACTH was given daily from 5-6-61 until 6-5-61 when reduced to 30 units daily, maintained until 11-20-61, when it was raised again to 40 units daily until 1-30-62. From 1-30-62 until 3-27-62, 50 units of ACTH were given daily. From 3-27-62 until 5-3-62 40 units of ACTH Gel were given twice daily. This was reduced to 35 units twice daily until date of admission.

1603 North Tucson Boulevard, Tucson, Arizona.

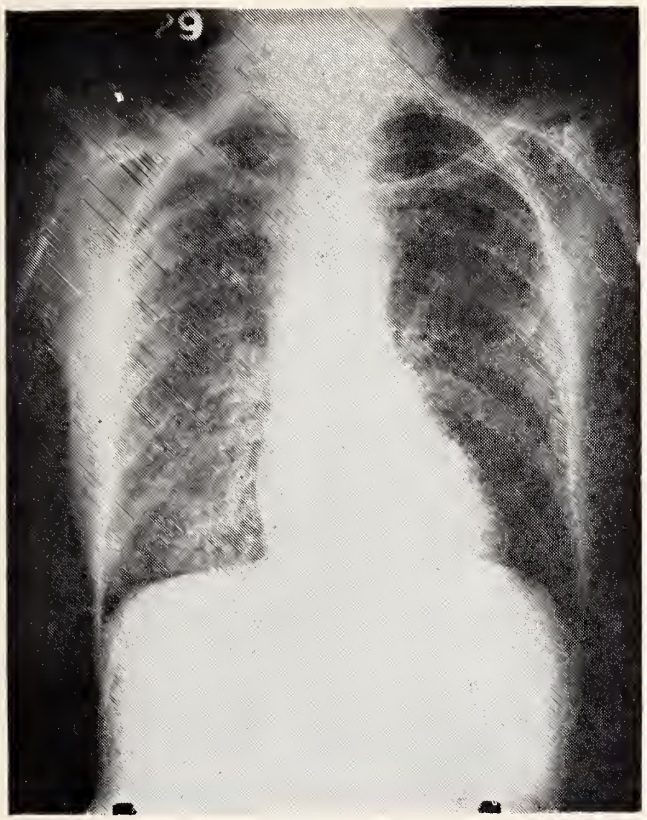


Figure 1.

Pertinent physicial findings on admission included advanced typical rheumatoid arthritic deformities of all peripheral joints, swelling and tenderness at and above left knee, generalized rales over both lungs, and cataract, left eye.

X-ray findings: 6-30-60 — P.A. Chest — normal heart and lungs. Rheumatoid arthritis of shoulders with demineralization of thoracic skeletal elements.

6-25-62 — Left Knee: Fresh impacted slightly displaced fracture, supracondylar aspect left femur.

Fig. (1) 6-25-62 — Chest: Diffuse "snowstorm" infiltrate both lungs with productive reaction. Differential diagnosis (1) miliary tuberculosis, (2) disseminated coccidioidomycosis, (3) staphylococcic bronchopnuemonia, (4) atypical Boeck's sarcoidosis and (5) lymphatic metatases.

Pertinent laboratory findings: Latex fixation test positive. Sedimentation rate varied from 5 to 30 millimeters at end of one hour. Eosinophilia first present on 4-7-61 varied between 8% and 10% until the time of admission, at which time 7% eosinophilia was noted in a total of 7750 white blood corpuscles per cubic millimeter. Sedimentation rate on admission was 40 millimeters after one hour (Wintrobe). Hemoglobin 12.8 grams per 100 ml. Hematocrit 38 Vol. %.

Three blood cultures drawn during hospitalization grew *Coccidioides immitis* two weeks later (ten days post-mortem).

Course in hospital: Patient was treated by a long leg cast applied to fractured left femur. On the fourth hospital day patient became dyspneic, cyanotic and developed cardiac arrhythmia with extrasystoles, progressive increase in pulmonary rales, and expired at the end of the fourth day.

Pathologic findings (Autopsy by Ralph Fuller, M.D. — whose captions accompany Figs. 2, 3 and 4): Disseminated miliary coccidioidomycosis without inflammatory reaction was demonstrated in the pulmonary, lymphoid, splenic, hepatic, renal, adrenal, and red bone marrow tissues.

Comment: Coccidioidomycosis is endemic in southern Arizona. Occurrence of dissemination is extremely rare in patients with or without adrenocorticosteroid therapy. The case of disseminated coccidioidomycosis reported by Castelot et al in a patient receiving steroid treatment for myelofibrosis (1) and that of De Nardo et al who had Hodgkin's disease and was receiving steroid therapy (2) are the only others reported to date in which dissemination seemed related to steroid administration.

Migration of many patients with rheumatoid arthritis and other collagen diseases to Tucson results in a large population susceptible to primary coccidioidomycosis. As many of these patients are on prolonged steroid therapy, a frequent occurrence of coccidioidal dissemination might be anticipated. As evidence of the rarity of this occurrence, however, there are only two instances in the files of St. Mary's Hospital during the past ten years. (The other was a patient with disseminated lupus erythematosus, the data on whom is incomplete.)

Among newcomers to an endemic area, the coccidioidomycosis attack rate is 25%. (3) The morbidity rate among these is only 4%. Dissemination occurs in only one of 500 infections. It is obvious that many hundreds of steroid-receiving patients in southern Arizona must have been infected during the past ten years in which steroids were used. Presumably the vast majority of them have had the usual normal immunologic response with spontaneous recovery from the disease. The case here presented is therefore considered to be a statistical chance happening and not to demonstrate a cause-and-effect relationship between

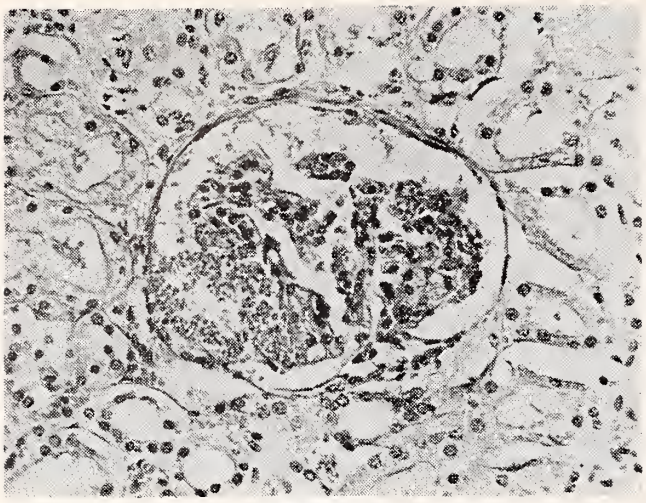


Figure 2,
Embedded in bone marrow is a submiliary lesion of coccidioidomycosis. Numerous relatively intact "parent cells" (endosporulating spherules) are noted. X 250

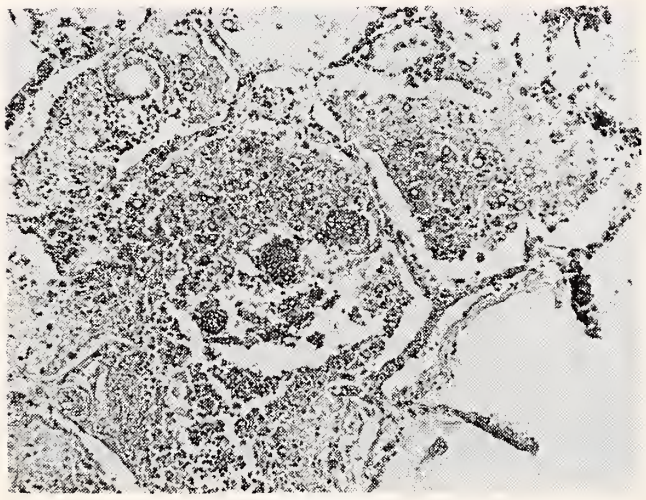


Figure 3.
A focus of coccidiodomycotic pneumonitis (pneumonia). The most centrally situated alveolar space contains disentegrating "parent cells". Peripherally, numerous relatively young spherules are noted. X-100

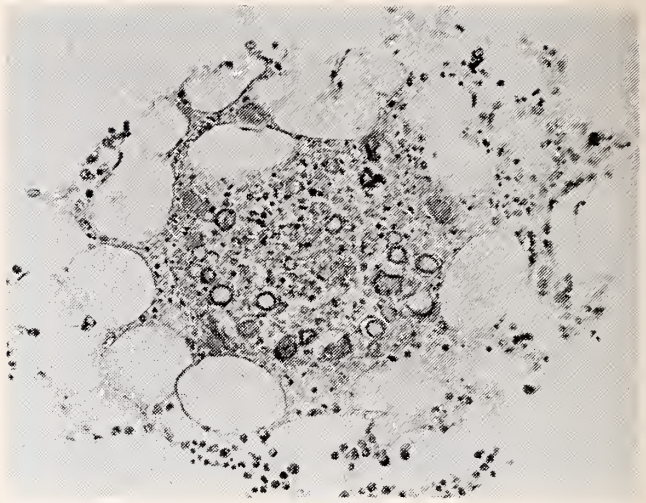


Figure 4.
A spherule of the genus **Coccidioides immitis** has lodged in a renal glomerular tuft capillary. The spherule has ripened and ruptured. The peripheral wall is no longer evident. Where the "parent cell" has been situated, closely packed young spherules are noted. There is no evident inflammatory reaction. X 250

steroid therapy and disseminated coccidioidomycosis.

Summary: Disseminated coccidioidomycosis occurring terminally in a 59 year old female patient on long term intensive adrenocorticosteroid therapy forms the basis of this case report. It is presented because of the illustrative roentgenographic and pathologic findings, and as the third such reported occurrence.

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UNSUNG HEROES OF DRUG RESEARCH

Someone ought to devise a salute to mice and monkeys, rabbits and rats, and all the other actual and eponymic guinea pigs of the animal world. Without them, pharmaceutical research would grind to a halt. Either that, or it would be transformed from a scientific pursuit into a deadly gamble. . . . The fantastic progress made in pharmaceutical chemistry since 1930 has been due in large measure to the availability of the unsung heroes of the living world: experimental animals. Editorial in *Journal of the Medical Society of New Jersey*, September 1963.

Primary Peritonitis in a Child 21 Months of Age

by

R. Michael O'Harra, M.D.

Laurence M. Linkner, M.D.

A case report of primary peritonitis due to beta streptococci is offered. The difficulty in diagnosis is discussed. This child had anemia, a purulent vaginal discharge and pyelitis. Hospital course culminated in what was thought to be an acute surgical appendix. No evidence of rupture of the appendix was found.

PRIMARY (ideopathic) peritonitis is an infection in the peritoneal cavity which is not secondary to an operation or a wound, to an inflammatory, perforative or other disease process in the peritoneal cavity. Seventy-five per cent of all cases occur under the age of five years and seventy-five per cent of all cases occur in females.[1] Two-thirds of the cases reported have been caused by hemolytic streptococci and one-third by pneumococci. About one-half of the pneumococcal cases have occurred in conjunction with nephrosis.[2] Other organims including the entercocci and Friedlander's bacillus rarely have been the cause.[3,24,26]

The mechanism of the pathogenesis of primary peritonitis is unknown. Two concepts regarding this problem have been proposed. The first is an ascending infection from the female genital tract.[1] The second is a hemotogenous spread of a pre-existing infection, ie., pharyngitis, pneumonitis.[1] Although neither route would seem to hold true in all cases, it may be that either one may play a role in an individual case.

Primary peritonitis was much more prevalent prior to the chemotherapy-antibiotic era. Search of the English literature over the past thirty years reveals a marked decline in the number of cases reported. (See table 1). Although there have been only fourteen cases reported in the English literature in the last ten years, personal communication reveals that this disease continues to be seen occasionally in a surgical practice.

The diagnostic difficulties and the management of primary peritonitis can best be illustrated by the presentation of the following case.

Table 1

Years	Number Reported	References
1931-1940	156	4-17
1941-1950	10	18-26
1951-1960	14	27-28

REPORT OF A CASE

History: Approximately fifteen days prior to admission this twenty-one-month-old white female child was seen in the Emergency Room of St. Joseph's Hospital because of vomiting and fever. The only abnormality to examination at that time was a rectal temperature of 104 degrees F. She received only symptomatic treatment for the fever and was referred to her private physician. She was seen the next morning in her private physician's office where a purulent vaginal discharge was found. This was treated with tetracycline phosphate for three days. The child

Dr. O'Harra, pediatric resident, St. Joseph's Hospital, Phoenix.
Dr. Linkner, surgical teaching staff, St. Joseph's Hospital, Phoenix.
From the Departments of Pediatrics and Surgery, St. Joseph's Hospital, Phoenix, Arizona.

was well after two days of the medication. One week later the child returned with a vaginal discharge and dysuria. Urinalysis at that time revealed many white cells per high power field on a voided speeimen. She was again treated with tetracycline phosphate for four days and again responded well to treatment. She was free of symptoms until the day after the medication was discontinued when she again developed dysuria, this time accompanied by fever and frequency of urination. At this time she was hospitalized. The parents stated that the child had been mildly anorectic but denied nausea, vomiting, diarrhea, cough, sore throat, rash, arthralgia or other complaints. She had no recent exposure to communicable disease. The past history was non-contributory. Physical examination: The child was a well developed, well nourished white female child who appeared acutely ill. Her temperature was 104 degrees F. rectally and she weighed twenty-six pounds. Examination of the head revealed no abnormality. The tympanic membranes were normal. No abnormalities were noted about the eyes, including fundiscopic examination. The mouth and nose were clear. The pharynx showed no sign of infection. The neck was supple. No lymphadenopathy was noted. The chest was clear to auscultation and percussion. The respiratory rate was twenty-five per minute with no shortness of breath. Examination of the heart revealed a rate of one-hundred forty-five per minute with a regular sinus rhythm. There was a soft blowing systolic murmur heard at the base of the heart which was not transmitted. Abdominal examination revealed slightly diminished bowel sounds. There was diffuse tenderness in both lower quadrants without point tenderness. There was some muscle guarding of the lower abdomen, bilaterally. There was no rebound tenderness. There were no abnormal masses palpable and the liver, spleen, and kidneys were not felt to be enlarged. No hernia was present. Exneurological examination revealed no abnormality. Rectal examination revealed moderate midline tenderness anteriorly in the region of the bladder. Examination of the extremities and neurological examination revealed no abnormality. Laboratory findings: Hemoglobin 8.0 grams per cent. White blood cells 25,150 per cubic millimeter with seventy-five per cent segmented neutrophils, two per cent band cells, twenty per cent lymphocytes, and three per cent monocytes. Urinalysis revealed clear amber urine with a pH of 5.0, positive for acetone, with three to five white cells per high power field and one to two epithelial cells per high power field. The urine was sterilly collected by catheter and a pathologic E. coli organism was isolated, sensitive to chloromycetin, neomycin, gantrisin, and furadantin.

Hospital course: On admission the child was given no antibiotics. A supine x-ray of the abdomen revealed only the accumulation of feces in the colon which was effectively treated with two glycerin suppositories. Within six hours after admission her temperature spontaneously dropped to 99.2 degrees F. and she remained afebrile for the following twenty-four hours. Thirty-six hours after admission she was found to have a rectal temperature of 105 degrees F. and she became quite lethargic. She appeared "toxic". She vomited approximately one-hundred cubic centimeters of coffee-ground material. At this time the child was started on continuous nasogastric suction and intravenous fluid therapy. She received thirty-six milligrams of furadantin® intravenously twice daily thereafter for the E. coli organism cultured from her urine. During the next thirty-six hours the child continued a septic course with temperature spikes to 105 and 103 degrees F. every three to six hours. Her abdomen became diffusely tender and her bowel sounds less active, although still minimally present. An intravenous pyelogram was done at this time with the thought of acute pyelonephritis or an obstructive uropathy in mind and it appeared to be normal. Her white blood cell count was repeated and was 20,850 cells per cubic millimeter with a continued perponderance of polymorphonuclear neutrophils. On the afternoon of the fourth hospital day she developed a rigid abdomen with diffuse rebound tenderness and absent bowel sounds. Abdominal and rectal examination revealed a mass in the right lower quadrant. At this point she was taken to surgery with a preoperative diagnosis of acute appendicitis with rupture and generalized peritonitis.

At surgery a generalized peritonitis was found evidenced by a large amount of thin cloudy intraperitoneal fluid which was odorless. The appendix was found in a mass of inflammatory tissue with exudate on its surface and it was excised. Gross examination of the appendix in the operating room revealed no site of perforation.

This was later confirmed by pathological dissection. The abdomen was closed with drains in place. Gram smear of the peritoneal fluid revealed a gram positive cocci appearing in chains. Culture of this fluid revealed a pure culture of beta streptococci.

Microsopically there was an infiltrate of granulocytic leukocytes of the serosa and in the immediate subserosa of the appendix. Concomitant inflammation of the mucosa was lacking and the pathologic diagnosis of "acute suppurative periappendicitis" was made (see figure 1).

Twelve hours after surgery the child was begun on intravenous penicillin, ten million units per day. Sensitivity studies received later confirmed the streptococcus organism to be sensitive to penicillin. The patient was continued on intravenous fluids and nasogastric suction. Forty-eight hours postoperatively the abdomen was only mildly diffusely tender and the bowel sounds remained absent .The temperature was 99.6 degrees F. rectally and the child was alert, oriented and well hydrated. Bowel sounds returned on the third postoperative day and nasogastric suction was discontinued and the child was begun on oral feedings. On the sixth postoperative day the intravenous fluids and penicillin were discontinued. The abdominal drains and sutures were removed on the eighth postoperative day. The abdominal wound continued to drain a small amount of purulent material for four more days. A culture of this drainage revealed a gamma streptococcus organism. She continued to improve and was discharged from the hospital on the eleventh postoperative day. A follow-up visit to her physician's office seven days after discharge revealed the child to be doing well and the abdominal wound to be well healed.

Conclusion: A case of primary peritonitis has been presented which seems to be typical in every respect. The course and treatment has been outlined in detail. This case appears to substantiate the fact that primary peritonitis, although seen less frequently since the advent of antibacterial agents, should still be considered in the differential diagnosis of all children with an acute surgical abdomen.

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We wish to thank N. W. Groce, M.D., who first saw this patient and without whose help and cooperation this case report would not have been possible.

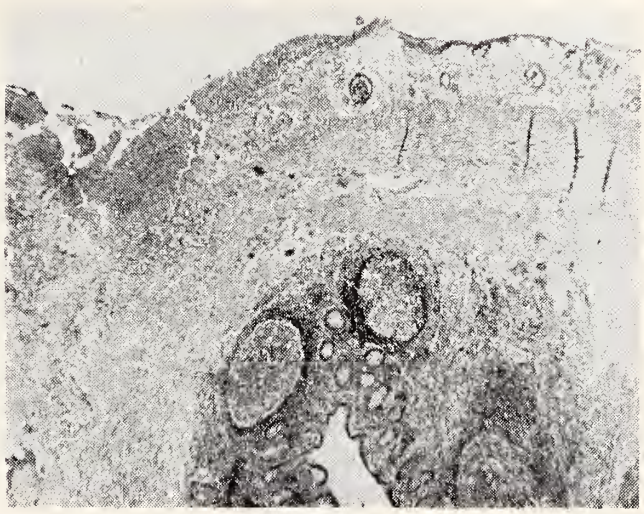


Figure 1.

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Merry Christmas and a Happy New Year to all the Doctors of Arizona. This is a time for merriment and also a time for sober assessment of the past year and the year to come.

We have in the year ahead some important problems to resolve both on the National and State level.

Hearings on the HR 3920, King-Anderson Bill, before the Ways and Means Committee began on November 18. To cloud the issue, on November 13, a task force on Health Care for the Aged consisting of 12 men, many definitely in favor of King-Anderson type legislation, made its report. It provided for Medical Care for the Aged by the use of both government funds and private insurance. As stated, it is an effort to break the congressional stalemate over Medical Care for the Aged. Significantly, the report is given just before the opening of hearings on the HR 3920.

We have been actively opposing HR-3920 since its introduction into Congress this year. Our Operations Hometown has been hard at work through the doctors, their wives, friends and interested persons. The length of this Congressional session, the delays in the hearings before the Ways and Means Committee, the introduction of compromise legislation should not throw us off our guard or lessen the intensity of our efforts. We must continue to oppose any type of legislation based on the Social Security approach. Better still, we should oppose any attempt on the part of the government to enter the field of legitimate free enterprise.

Be sure to carry through on 5 for 1 program.

We must turn our attention to state problems. Three important bills will be introduced in the second regular session of the 26th Legislature meeting the second Monday in January. Know your Senators and Representatives and the make up of the important committees. On pages 22A and 23A, a list will be found for your convenience, so that you can bring our story to them.

Medical Practice Act

A new proposed Medical Practice Act will be introduced very similar to the one introduced in last year's session, except a number of changes have been made that will make the bill more acceptable to the Legislature. It is a new act which we consider necessary to give the people of Arizona better protection and will offer them better medical care.

Amendment to Basic Science Law

Our Basic Science Law has needed clarification since the Attorney General's opinion June 2, 1960. The amendment provides for the return of the law to its original intent, that is, to grant reciprocity to those from out of state who have truly succeeded in filling the same requirement imposed upon Arizonans while denying reciprocity to those who have not.

The state of Arizona needs Kerr-Mills Enabling Legislation. To provide medical care for those who need it at local level under local control. Bills are to be introduced. The details will have to be given later. This objective of ArMA needs the support of all the doctors and their wives to enable its passage in the next session of the Legislature.

Efforts have been made by various groups to downgrade the Kerr-Mills Law. In the report of the Subcommittee on Health of the Elderly of the Senate Special Committee on Aging, the majority report strongly attacks the effectiveness of the Kerr-Mills program. The Minority report reaffirmed that Kerr-Mills was never expected "by itself" to provide the sole avenue for financing medical care.

We must not be confused by all these attacks by those who would destroy our free system of Medicare and our free economy. We must continue to fight for Kerr-Mills and fight to destroy HR-3920, King-Anderson and other types of like legislation.

The comments about the State Legislature are in the nature of information to alert all the doctors and their wives to be prepared to work to insure the passage of this legislation next year!

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This issue completes twenty years of publication of *Arizona Medicine*. The first issue appeared in January, 1944, when the end of the war was not in sight and the State Medical Society membership numbered approximately 400. More than 100 of these members were in the armed services.

The first editor-in-chief was Frank Milloy who guided it through its birth and infancy. His work was ably carried on by Lee Foster and later by Darwin Neubauer and their many associate editors.

To serve the members of the State Medical Society has always been the purpose of *Arizona Medicine*. To educate by scientific articles, to inform by reporting minutes of state society committee meetings, to enlighten by describing pertinent legislative matters, and to stimulate by publishing thoughtful editorial comments, has been our aim.

The Journal has also served as ambassador representing the doctors of Arizona in various parts of the world, and has supported the Medical Society of the United States and Mexico.

The continuing realization of these goals depends, of course, on the interest and contributions of you, the present members of the State Society; because, *Arizona Medicine* is *your* Journal, and *you* are Arizona medicine.

Robert F. Lorenzen, M.D.
Editor

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Material submitted for publication in ARIZONA MEDICINE should conform to the following policies:

1. Manuscripts, including references or bibliography, should be typewritten, double-spaced, on one side of the paper only, and the original and a carbon enclosed.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

3. Although the Editors try to catch inaccuracies, the ultimate responsibility is the author's.

4. Articles are accepted for publication only if they are contributed exclusively to this Journal. Ordinarily, contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.

5. The Journal reserves the right to edit all material.

6. Reprints will be supplied to the author at printing cost.

Editorials of Arizona Medicine are the opinions of the authors and do not necessarily represent the official stand of The Arizona Medical Association, Inc. The opinions of the Board of Directors may be sought in the published proceedings of that body.

Editor's Note: The following editorial appeared twenty years ago in the first issue of Arizona Medicine, *written by the late pioneer Arizona ophthalmologist Doctor D. F. Harbridge, then associate editor of the Journal. We feel it timely and interesting today.*

Whither — Organized Medicine

It is an honor and a pleasure to contribute an editorial for this, the first issue of *Arizona Medicine*. The Editor, in extending his kind invitation for the contribution, left open the choice of subject. Being mindful of the increasing attempts to overthrow the practice and service of medicine as it has always been understood and heartily accepted, and being mindful of the pernicious ramifications of such current mal-legislation as the Wagner Bill (Senate 1161), I know of nothing better that I can say than to sound a warning on "Whither — Organized Medicine."

It so happens that my presidential address, when I was inducted into that high office of our Association in 1940, covered the subject with what I said then as appropriate today, if not more so, than when presented then. I, therefore, repeat brief sections of that article for editorial thought here:

Sounding Off

There are those sitting in high places who are sounding a discordant note against organized medicine. This discordant note has to do with medical service rather than with medical practice — and medical service at a price, the price being restriction and regimentation. Sounding this sour note are the economist and the sociologist who have arrived on the American scene and in the medical field. They are implemented by propagandists. By their activities they have diminished, and in some instances almost destroyed the faith of the public in the medical leadership which accomplished so much for the public welfare before the arrival of the expert economist and the expert sociologist. Their fascinating theories, couched in cleverly formed phrases and uttered in well-cultivated voices make a stronger appeal, in many instances, than the calm, logical voice of experienced medicine.

The Economist Proposes

The economist forgets, or ignores, that the man of medicine is not trained to work for money. The medical student is taught from the outset that he is not to work for money or to work for fame, but to search for knowledge and to seek to relieve the suffering of mankind. If the economist has his way and continues to seek a service at a price, he will soon find himself in the position of the family employing a Chinese cook. In employing this Chinese cook the question of salary rose. "What do you charge for your cooking, Ying?" asked the lady of the house. "What kind of cooking you wantee?" countered Ying. "Me do $20 cooking, or me do $10 cooking." The physician, if permitted to continue with his private practice, will give his patients, as always, good, substantial $20 cooking, but if hired to serve medicine at a price is very apt to lag into indifferent $10 cooking. If profit is to be removed from medicine, physicians will at best become draft animals. If the question of gain is to be removed from medicine and the general public taxed so that those not having medical care may have it, then why not sell automobiles at cost and levy a tax on the public so that those not able to buy automobiles even at cost may have them free. One proposition is as reasonable as the other in the final analysis.

A socialized medicine is being proposed in place of an organized medicine. Organized medicine has its roots in democracy, for "Wherever the art of medicine is found, there also is found a love for humanity." Socialized medicine does not have its roots in the democratic principles which have made this country great, for it would destroy individual initiative. It is true that government must assume its rightful responsibility for the care of those on welfare rolls, but there must be a limit beyond which government must not step without usurping personal responsibility. Government's first problem in medical service is to provide adequate care for those on relief; its second consideration is to permit the medical profession and organization to till its own field. "Medical problems can best be solved by medical practitioners, not by am-

bitious, if well trained, politicians who never circumcised a young man nor catherized an old one." Our changing medical service can and must be changed only by the physician himself, through his medical society, and not through regimentation. The medical practitioner must be free from bureaucratic control in order that he may go his untrammeled way in adding his mite to the beneficient influence which our profession has always contributed to the upward progress of humanity.

Organized Medicine Disposes

If American medicine is to be saved from disaster, it must be through organized medicine, and the individual physician must be prepared to play his part or take the consequences. Propaganda can be met only by counter-propaganda. Half truths, illogical deductions, insidous inneundoes, and their like, can only be met by refutations and counter-activities that give the lie to them.

In this, our medical organization in Arizona, the responsibilities do not rest entirely with the officers of your Association. *In the last analysis, the rank and file of the membership are the ones responsible.* They should make it their business to take an active constructive part in the affairs of the Association, keep themselves thoroughly and fully informed on the social and political problems and be prepared to meet them intelligently.

If each individual physician will do his full part, both as a private practitioner of medicine and as a member of his professional guild, our case will rest pretty largely in the hands of our patients and ourselves and there will be little to fear as to the outcome. A great deal has been accomplished in recent years through our organizations, county, state and national, but a great deal more can and must be done if we are to hold our ground in this modern changing society.

D. F. Harbridge, M.D.
Associate Editor — 1944

DISASTER MEDICAL CARE

The American Medical Association after nearly two years intensive study of National Emergency Medical Care published the report of its findings in April, 1959. Responsibility of organized medicine on state, county and local level to implement an efficient program for survival forms the major premise of this report. This includes predisaster planning for extensive civilian disasters, in addition to nuclear warfare. A considerable local hospital expansion or, a completely improvised hospital establishment in a community where no ongoing hospital exists, is to be implemented through the Civil Defense Emergency Hospital Program. There are eleven such completely packaged, prepositioned hospitals strategically stored in Arizona.

The Council on National Security of the A.M.A. sponsored a conference on Community Preparedness for Emergencies June 23, 1962 which was presented by the Division of Health Mobilization of the U.S. Public Health Service. George M. Fister, M.D., President of the A.M.A., in his address of welcome stated, "The A.M.A. in a House of delegates resolution pledged itself this way — Physicians of our country individually and in associated bodies must accept the basic responsibility of preparing for and assuming the management of mass casualties during a grave national disaster." This resolution did not magically supply medical help where it is needed but did clearly set the direction for predisaster planning among constituent medical societies where action must be generated." "In today's world, medical preparedness for the kinds of disaster which cannot be evaded or avoided presents a tremendous responsibility and obligation to the medical and allied professions."

Dr. Fister stressed the importance of Physicians becoming throughly familiar with the Medical Self-Help training program, and by accepting it maintain their time honored role of teachers and community leaders. "Making medical disaster preparedness an individual matter

is a major responsibility of Medical Societies and physicians in health mobilization. We (the A.M.A.) wholeheartedly accept the responsibility."

Luther L. Terry, M.D., Surgeon General of the U.S. Public Health Service, stated, "We are here to think realistically and plan realistically what we must do now and what we must do systematically month after month, year after year — to live up to our charge."

"The task is formidable and beset with difficulties. But our future as a nation depends on it."

"Victory, if one may speak of victory after the holocast of thermonuclear war, will go to the nation which recovers most swiftly from the effects of attack. And the speed of recovery will depend directly on our ability to institute an efficient, well organized, highly coordinated emergency health activity. Without this, all other elements of Civil Defense planning have little meaning."

The Medical Self-Help Training program, "MSHTP" of the U.S.P.H.S. has for its objective the training of millions of citizens across the U.S.A. during the next few years. While primarily designed for the needs of shelter occupants deprived of medical and nursing care, from the individual family to the community level, the 16 hour (12 lessons) course content is so excellent that it has been designated as basic training for all personnel in the health and medical program such as the personnel shown in the recommended staffing patterns of the Civil Defense emergency hospitals and first aid stations, litter bearer, ambulance groups, etc. The Disaster Medical Care committee of the A.M.A. Council on National Security has endorsed this course as a nationwide project and its use as the basic training for all Health and Medical personnel. More than 100 training kits are now available in Arizona, and during July and August of 1963 a state-wide televised course was presented by the Maricopa County Medical Society on KPHO.

In 1959, the overall administrative responsibility for Disaster Medical Care was assigned to the Surgeon General of the U.S. Public Health Service of the Department of Health, Education and Welfare which then organized a Health Mobilization Branch. Progress has been made in providing guide lines and assisting state, county and local organizations in planning for natural disasters or an enemy attack. Utilizing State Public Health Departments the service supervises vast amounts of medical equipment and supplies in Federal warehouses, and conducts an annual inventory and replenishment program for the aforementioned Civil Defense Emergency Hospital Program.

However, neither Public Health Departments nor Government Civil Defense organizations are responsible for adequate preparedness for Medical Care in disasters. This responsibility is that of organized medicine. If our component Medical Associations of Arizona are prepared for disaster so as to immediately provide efficient medical care support under the direction of the Department of Defense in the event of war, then and only then has this responsibility been accepted.

Carl W. Waldron, M.D.
Coordinator, Disaster
Medical Care Committee

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A Matter of Principle

It is strange, at times, how respected and honored institutions, as well as people, can rationalize their thinking so that, at the same time, they can take opposite positions on related matters.

To be specific, I would cite the position of the AMA in relation to Fedicare, or the King-Anderson Bill, which proposes to give hospital benefits to those over age 65 under the Social Security program to which it is opposed on the principle that it would lead to socialized medicine, and the recently enacted Federal Aid Bill for construction of medical schools, which had full support of the AMA.

There would seem to be little relationship between these two bills, but on close examination one notes an outstanding thing — **they are both bills whereby the Federal Government is entering the field of private medicine.** Preposterous, you say! One may argue that the King-Anderson Bill proposes to socialize medicine, whereas, Federal aid for the construction of medical schools merely provides funds for the construction of schools and no control is conceivably possible by the Government. This may superficially appear to be true, but, nevertheless, it represents unlawful use of tax money. The Federal Government has no power, under the constitution, to enter the field of education **in any way whatsoever.** More disturbing, accepting funds for building these schools makes it infinitely easier to start scholarship programs, and later, supplementing wages for teacher, and thus, ultimately, gaining complete control over all aspects of medical education. By controlling those who teach, imparting the socialistic philosophy is simple — as simple as using Fedicare for the advancement of ultimate socialized medicine.

It would seem, and to me is, paradoxical that the AMA could so vehemently oppose Fedicare and support the aid to medical schools bill. Why should it compromise on even the smallest issue? The AMA must realize that the Liberals do not want the whole cake at once — a foot in the door has ever been their manner of gaining ultimate and complete control of many fields of activity formerly felt to be completely outside the jurisdiction of the Federal Government.

A witness for the AMA, before the committee hearing this bill in the House, was asked by a congressman why he and the AMA upheld aid to medical schools while being strongly opposed to Federal aid to the aged. The same congressman stated the witness appeared to be taking a stand against one socialistic and illegal bill, while accepting one that as the same in spirit. It seems to me that this is hypocritical when refusal to accept socialism is upheld because of principle then acting as if no such principle existed on the other hand (Federal Aid for medical school construction).

I am opposed to this. If we let the Federal Government come into the medical schools, their control by Government must surely follow as **it has in every other area of aid by the government.** To my way of thinking, the AMA is wrong. Principles cannot be divided, and the principle here can be state as follows: "**The Federal Government has no lawful power under the Constitution to enter into the field of private medicine.**" This would be applicable either to medical care for the aged, or for the giving of Federal funds for medical school construction. These prerogatives being those of the individual states.

I believe that the AMA should recognize what is right in both cases and renounce its approval of Federal Aid to medical school construction. In fact, it should renounce Federal aid to medicine in any area, or it will soon become another unofficial agency of the Federal Government. Now that it has endorsed Federal Aid to medical school construction, a Pandora's box has been opened and ultimately this organization will have to look at itself with disgust when it finds itself at a point where it must make a decision whether or not to support Federal Aid to medical education and oppose Fedicare.

Entrenchement by the Government will then be so established that it will avail the AMA nothing to reverse itself and denounce Federal Aid in this field. Now, therefore, is the time to go on record as in opposition to Federal Aid to medical school construction and it may well be too late. The camel's nose is under the tent.

—Ernest H. Schaper, M.D.
St. Louis, Missouri

The foregoing article is reprinted with permission from the St. Louis Academy of General Practice publication NEWS AND VIEWS, Sep-September, 1963.



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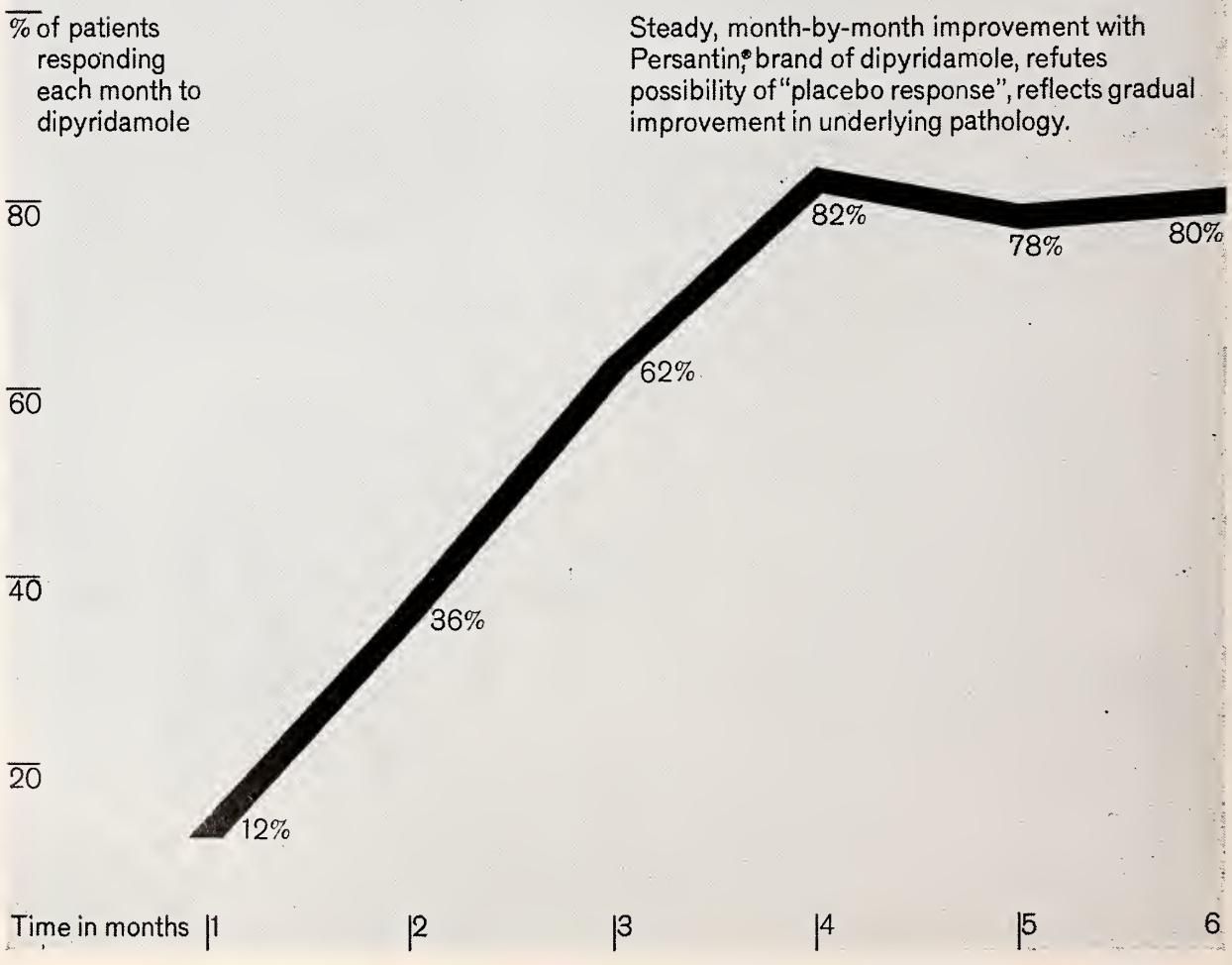
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Griep,A.H.: Long-term Therapy of Ischemic Heart Disease With Oral Dipyridamole:
A Report of Fifty Cases. Angiology 14:484, 1963.

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Wirecki,M.: Dipyridamole (Persantin®): Evaluation of Long-Term Therapy in Angina Pectoris. Current Therapeutic Research 5:472, 1963.

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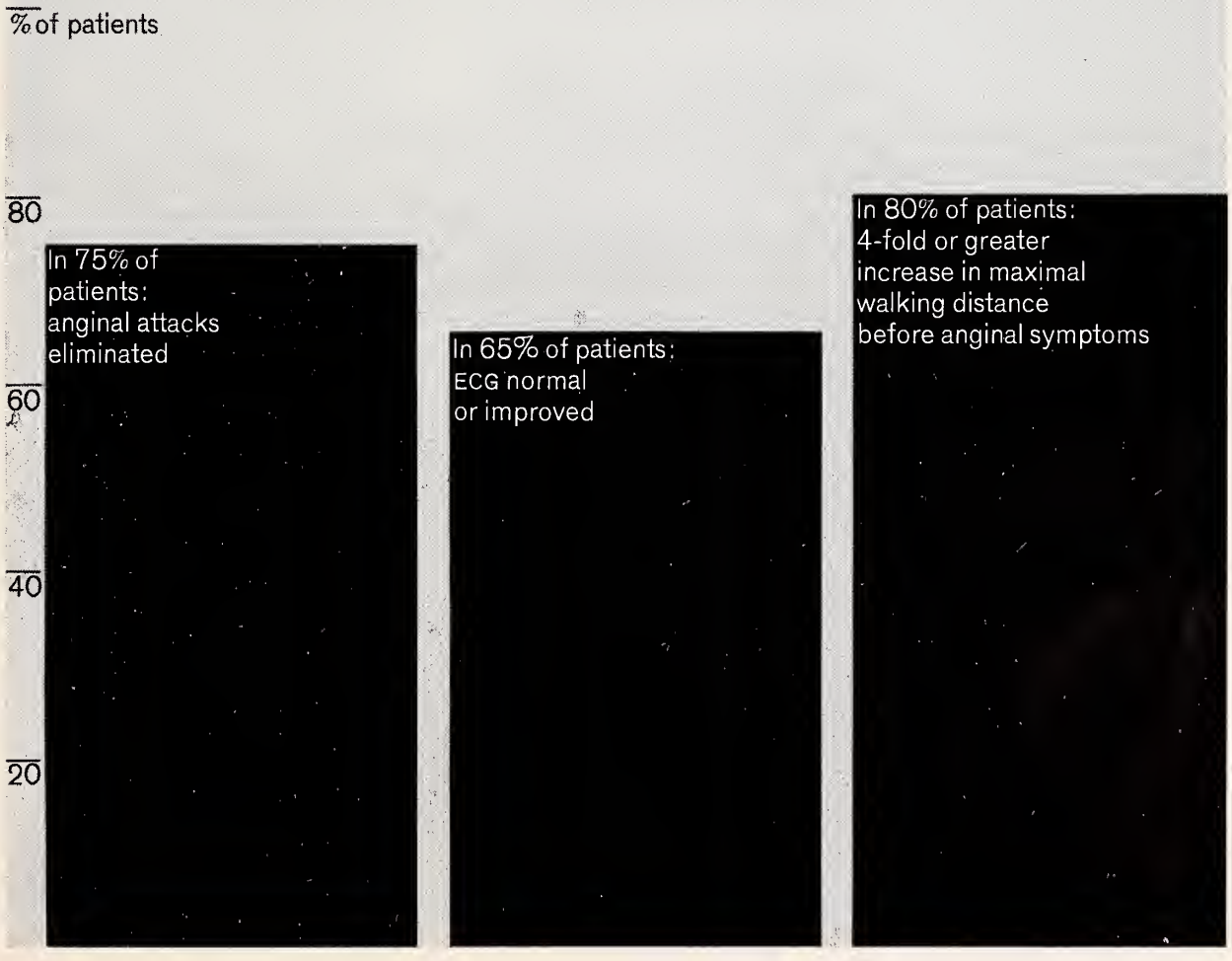
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Robert Nelson Looney, M.D.

1870 - 1962

Arizona lost the last of its pioneer physicians and surgeons when Doctor Robert Nelson Looney died June 2, 1962 in Prescott. He had practiced his profession in Yavapai County in Arizona for more than 50 years. Doctor Looney was a past president of the Arizona Medical Association; a member of the Yavapai County Medical Society, whose meetings he attended regularly; the Masonic Lodge; and retired surgeon for the Atchison, Topeka and Santa Fe Railroad at Prescott. He also served as Yavapai County superintendent of health, and was state superintendent of health under two governors — George W. P. Hunt and Thomas E. Campbell — from 1912 through 1917.

Doctor Looney was an ardent sportsman, spending a great deal of his time hunting and fishing. He was vitally interested in the conservation of wild life and was one of those instrumental in bringing elk into Arizona from Montana, bearing a great deal of the expense himself. The elk were unloaded at Williams and were released in Northern Arizona. Although the elk are now hunted in season in Arizona. Doctor Looney ironically never had a permit from the state game department to hunt elk. In the early '30s, he imported Chinese pheasants into Yavapai County but unfortunately the birds were exterminated by the coyotes and foxes.

Doctor Looney served in 1905 and 1906 as Yavapai County representative in the Arizona Council of the territorial legislature. He served on the staffs of the Yavapai County Hospital, the Mercy Hospital and the Prescott Community Hospital. He also served as county physician. An active golfer, he continued in golf competition until his mid-sixties.

Doctor Looney was born in Dunlap, Tenn., July 6, 1870. He spent two years at Grant's University in Athens, Tenn., and then entered the medical school of Vanderbilt University in Nashville, Tenn. After two years, he developed pulmonary tuberculosis and came to Mayer, Ariz., to recover. Mayer then, June 17, 1896, was a small stage station with a small population. Doctor Looney began practicing medicine in Mayer, and in June, 1898, he moved to nearby McCabe with a population of 3,000 persons, mostly men, where he became mine physician on a contract basis. He built a small hospital there, did all of his own work, and for a time had to give his own anesthetics before he could operate. On one occasion, he amputated both hands of an injured miner by himself. Later Doctor Jack McDonald joined him as his assistant at Mayer.

In 1899, Doctor Looney returned to Vanderbilt University where he completed his medical course. He came back to Arizona and took the medical examination and received his certificate from the state board of medical examiners. In 1904, he sold the hospital at Mayer and went to Prescott in 1905 after spending three months doing post graduate work at Poly Clinic in New York City.

He took offices in the Bashford Building, corner of Cortez and Gurley Streets, which had been erected after the disasterous 1900 fire in Prescott. In the new building with him were Doctor Harry J. Self, Sr., Doctor Harvey J. Blaine, a dentist; Doctor McNally, Doctor John W. Flinn, Doctor Davis, Doctor Warren Day, and Doctor C. E. Yount, with whom Doctor Looney shared a reception room for 10 years.

When Doctor Looney was in McCabe, the railroad, built in 1898, came as far as Huron.

In Memorium

Doctor Ancil Martin, a Phoenix eye specialist, had the railroad medical contract which he sublet to Doctor Looney. When the railroad built a branch to Humbolt and Crown King, Doctor Looney got the company contract as physician. He got a dollar per month for every man who worked a minimum of three days. Doctor Looney, laughingly, said it was a most lucrative contract since the men worked a few days and then drifted on. The doctor realized from $800 to $900 a month from the contract.

In those early days, Doctor Looney used carbolic acid to prevent infection in wounds. Medicine then was compounded by the doctor from his own prescriptions so that he was a druggist as well as a physician. Doctor Looney, in an interview prior to his death, said he never thought he would live to see the time when anti-biotics would be as common as today, and would be used in the treatment of pneumonia instead of quinine and Dovers powders, a treatment in which the mortality rate was alarmingly high.

When Doctor Looney first began practice, chloroform was used to anesthetize a patient for surgery, and was usually given by a physician. Its use was both dangerous to the patient and to the surgeon, he said. Later ether replaced chloroform and its use became very popular. Doctor Looney said he never expected to live to see anesthesia induced with the aid of complicated apparatuses and a variety of gases instead of chloroform and ether.

Although Doctor Looney was associated with organized medicine during his entire lifetime, he had numerous other interests. He was one of the organizers of the Yavapai County Savings Bank, now the Pioneer Bank. In 1906 he was elected a director, an office he held for more than 40 years. He owned the Bar-Hart Ranch and was interested in other ranch holdings in partnership with Ben Perkins, an association which ended in the mid '30s. Doctor Looney had his own cattle brand.

His widow, the former Martha M. Mayer, daughter of the founder of the town of Mayer, is now living in Mayer with a sister. A daughter, Mrs. Marjorie Looney Bloedel of San Francisco and one grandchild also survive.



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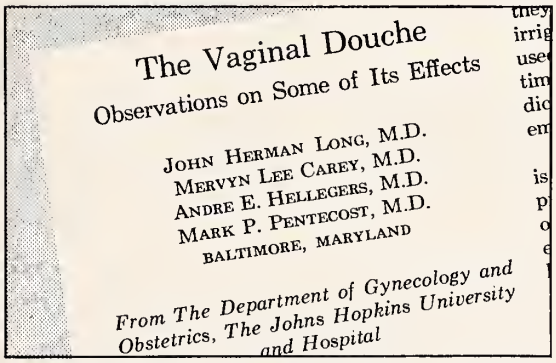
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This new book gives you the best treatments, currently in use by leading authorities, for over 300 diseases and disorders that afflict children.

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A DEFINITIVE STUDY ON DOUCHING



The Vaginal Douche

Observations on Some of Its Effects

JOHN HERMAN LONG, M.D.
MERVYN LEE CAREY, M.D.
ANDRE E. HELLEGERS, M.D.
MARK P. PENTECOST, M.D.
BALTIMORE, MARYLAND

From The Department of Gynecology and Obstetrics, The Johns Hopkins University and Hospital

A SEARCH OF MEDICAL LITERATURE REVEALS NO COMPARABLE OBJECTIVE EVALUATION OF THE SUBJECT.

The authors state at the outset,

"Each physician has his own idea of the value or harm of the vaginal douche and many have expressed such ideas in writing. Such opinions have been arrived at without any intensive investigation or observation of subjects using douches as compared to those not using them. The purpose of this study is to report our observations on three groups of patients, one taking no douches, a second douching with a medicated solution* and a third douching with plain water."[1]

1. West. J. Surg., Obsts. & Gynec.: *71*:122-127, 1963

*The medicinal powder used in this study was META CINE®, a scientifically formulated preparation containing: papain, lactose, citric acid, methyl salicylate, eucalyptol, menthol and chlorothymol.

OBSERVATIONS BASED ON EXTENSIVE AND THOROUGH EXAMINATION SCHEDULE.

"One hundred patients were selected at random, regardless of their chief complaint, from the general population attending the Out-Patient Gynecology Clinic of The Johns Hopkins Hospital. Those selected were reexamined at 1, 3, 6, 9 and 12 months after the initial visit."

"At intervals patients were switched to the regimen of another group so that comparison of the effect of douching or not douching might be made in the same individual."

Three years were required to complete the study.

An evaluation of the objective findings of the study demonstrates that douching with META CINE® had the following effects on vaginal secretion:

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- proved effective in lowering WBC counts,
- proved effective in increasing glycogen content.

META CINE® was found to be a good antagonist to vaginal discharge and irritation—and also proved effective in reducing cervicitis.

No untoward effects of douching were encountered in the study.

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SK&F

The following item represents a portion of a letter written by Clifton J. Alexander, M.D. following his recent visit to Europe and contains pertinent observations on the status of doctors of medicine under the British National Health Service and under the Swiss Semi-Compulsory Service.

First, let me state that the physician's lot under the N.H.S. of Great Britain is not a happy one. A friend who is a very busy G.P. in the city of Glasgow must see 60 patients of a Monday morning and 40 patients of a Monday afternoon; besides this, he is required to make 5-15 house visits a night under the most flimsey pretenses; and if his better judgement tells him not to go, he is very often called before the Panel Committee, consisting of laymen, to explain why house visits were not made on the patients, who obviously could be handled in the office. On other days of the week, the N.H.S. physician is required to see 34-40 patients in the morning and an equal number in the afternoon.

The physicians that I spoke to complained that they were no longer physicians, but merely clerks whose function was to sign forms; and that it was no longer a pleasure, but a chore to be a physician in Britain at the present time.

Elective surgery sometimes has had to wait two years before beds were available, and emergency cases could be guaranteeed a bed only if senior consultants are called; as a junior consultant does not have sufficient seniority to guarantee a bed for a patient.

Because of the disenchantment of the young British students with the study of medicine, some 70% of the house staff in the N.H.S. hospitals were made up of physicians from the Commonwealth; some of whom could not speak English on arrival in Britain.

In Switzerland, on the other hand, where 75% of the population is covered, more or less, by compulsory insurance against illness or accident, there was a recent conflict between the Swiss Medical Association, the Government and the Insurance Companies.

However, in this case, the physicians stood firm on their principles, and the government acceded to 95% of what the physicians requested; the medical system in Switzerland continues on a voluntary basis; with each patient selecting his own doctor and the doctor having the right to reject whichever patients he does not want; regardless of what insurance he has or not.

Incidentally, there is no two year wait for elective surgery in Switzerland and hospital beds are immediately available for those who need them.

This should be a lesson to us, in that physicians standing firm on their principles find they have public support in any discussion with the insurance companies or the government.

I trust that this will be of some interest to the members of the State Medical Association and the members of the A.A.G.P. in view of the widespread public interest now displayed in discussions of medicare.

Sincerely yours,

Clifton J. Alexander, M.D.
Tucson, Arizona



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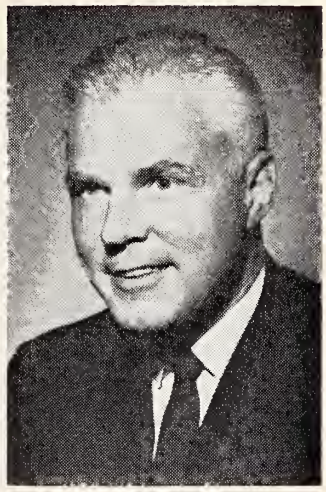
Side Effects and Precautions: Prolonged administration can produce mild hirsutism, acne or voice change. In an occasional patient, edema has been observed and in young women the menstrual periods have been milder and shorter. These side effects are reversible, and patients receiving prolonged treatment should be examined and questioned periodically so that, should side effects appear, the dosa may be reduced or administration of the drug discontinued for a tim In patients with impaired cardiac and renal function, there is the po sibility of sodium and water retention. Liver function tests may reve an increase in bromsulphalein retention, particularly in elderly p tients. In such cases, therapy should be discontinued. Although it h been used in patients with cancer of the prostate, its mild androgen activity is considered by some investigators to be a contraindicatio

Dosage: Usual adult dose, I tablet t.i.d. before or with meals; youn women, I tablet b.i.d.; children (school age): up to I tablet t.i.d.; chi dren (pre-school age): ½ tablet b.i.d. Available as scored tablets 2 mg. in bottles of 100. For best results, administer with a high protei diet.

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Winth

University of Arizona College of Medicine Dean Appointed



Dr. DuVal

A noted physician, surgeon and medical educator was appointed dean of the University of Arizona College of Medicine during a meeting of the Board of Regents of the Universities and State College of Arizona on Sept. 28 at Tempe, Ariz.

Dr. Merlin K. DuVal Jr., of Oklahoma City has accepted the UA post and will move to the campus in January or shortly thereafter, according to Dr. Richard A. Harvill, president of the university.

Dr. Duval is presently assistant director of the University of Oklahoma Medical Center, secretary-treasurer of the Oklahoma City Surgical Society, president of the Oklahoma Surgical Association, a member of the Governor of Oklahoma's Commission on Higher Education, and is Attending Surgeon at the Veterans Administration Hospital in Oklahoma City.

"I am highly pleased that Dr. DuVal has accepted the invitation to join the UA faculty as Dean of the College of Medicine," said Dr. Harvill.

"Dr. DuVal has profound understanding of medical science and education, has kept abreast of trends and developments in the fast changing area of medical education, research and service, and possesses the vision, energy and all of the personal and professional qualifications necessary to leadership in the development of medical education in all of its phases in the State of Arizona."

Harvill pointed out that Dr. DuVal had achieved a brilliant record as a student throughout the period of formal education in medical school and of preparation for the practice of surgery.

"He has demonstrated outstanding ability as a teacher and has attained eminence as a surgeon. His leadership qualities as a member of the University of Oklahoma faculty have gained for him the great respect and confidence of the faculty of the university, of the members of the medical profession, and of other citizens throughout that state. I am looking forward enthusiastically to my associations and work with him," Harvill said.

Dr. DuVal is expected to make several visits to the UA campus before he actually assumes his duties as dean. Beginning early in 1964 he will concern himself with the complex organization of the UA College of Medicine.

"Dr. and Mrs. DuVal have been active in many cultural and civic endeavors in the State of Oklahoma. Dr. and Mrs. DuVal and their three children will be attractive additions to the university community and to the State of Arizona," Harvill said.

Dr. DuVal is a native of Montclair, New Jersey. He recieved his early education there, then earned the B.A. degree at Dartmouth College. Following two additional years at Dartmouth Medical College he gained a certificate, then went on to Cornell University where he was awarded the M.D. degree in 1946.

Dr. DuVal served as an intern in surgery at New York Hospital. In 1947 he became ward surgeon at the U.S. Naval Hospital in St. Albens, New York. In 1949 he accepted the post of rotating intern at Roosevelt Hospital in New York

City. This was followed by four years as resident in surgery at the Bronx Veterans Administration Hospital.

In 1954 Dr. DuVal became an instructor in surgery at the State University of New York School of Medicine in Brooklyn. He also acted as assistant attending surgeon at Kings County Hospital. A year later he was appointed assistant professor of surgery at that university, associate attending surgeon at Kings County Hospital, attending surgeon at the Veterans Administration Hospital of Brooklyn, and surgical consultant for the U.S. Naval Hospital at St. Albans, New York.

During the period 1956 to 1961 Dr. DuVal was a Markle Scholar in Medical Science. The Markle scholarship program is designed to foster knowledge and to promote the general good will of mankind. Its present major interest is medical education and it seeks out especially brilliant young medical school members planning careers in teaching and research.

Dr. DuVal became associate professor of surgery at the University of Oklahoma in 1957. He retained that title until 1961 when he was appointed a full professor and president of the association of the University of Oklahoma Medical faculty. During that time he also served as vice president of the Oklahoma Surgical Association and as a member of the board of directors of the Oklahoma City Chamber of Commerce.

During the past eleven years, Dr. DuVal has written and participated in the writing of more than 25 medical papers, most of which are concerned with study of the gastric system and cancer research.

Dr. DuVal is a member of Alpha Omega Alpha, the American Medical Association, the New York Academy of Science and Sigma Xi Scientific Society. He is a fellow in the American College of Surgeons and a member of the International Surgical Society, the American Surgical Association, and the Southwestern Surgical Society.

The National Board of Medical Examiners and the American Board of Surgery have awarded diplomas to Dr. DuVal. He holds membership in the Society of University Surgeons, the American Federation for Clinical Research and the American Gastroenterological Association.

"AMA Retirement Program"

The American Medical Association, taking advantage of a new federal law, has created a retirement program for qualified physician members of the AMA and their full-time employees.

The program was made possible under provisions of Public Law 87-792, which passed Congress as the Keogh Bill and was signed into law October 10, 1962.

This law permits everyone who is self-employed to use a portion of his earned income to participate in a tax-deferred pension program. The tax-deferment privilege had previously been extended to employees of corporations, associations and other organizations but had been denied to the self-employed prior to enactment of the new law.

The physician, or other self-employed individuals, now may set aside in a qualified retirement program up to $2,500 or 10 per cent of his annual earned income, whichever is smaller, and defer payment of federal income taxes on half of this pension-program contribution until he receives the benefits.

The individual, however, must provide proportionate benefits to all of his full-time employees who have worked for him for at least three years. He may include all his full-time employees regardless of length of service. His contributions for the benefit of his employees are fully deductible. A full-time employee is one who warks at least 20 hours a week and at least 5 months of the year.

If the self-employed individual, for example, sets aside 5 per cent of his own net earnings, he is required to contribute on behalf of his employees an amount equal to 5 per cent of their salaries. If his own contribution is 10 per cent, he must contribute the equivalent of 10 per cent of his employees' salaries.

If a plan provides for voluntary contributions

for all participants, the employer also may then enlarge his program with an additional contribution up to 10 per cent of his earnings to a maximum of $2,500. This additional money is non-deductible. The employee is also privileged to contribute additional funds to the program for himself at the same rate used by his employer. However, the employee is not subject to the dollar limitations.

Under the AMA program, the physician and his employees will have the choice of investing their contributions in an equity investment fund or in insurance annuities or in both. If both are chosen, the participant will designate the amount of his contribution to be invested in each.

The equity fund will be used to purchase stocks, real estate, mortgages and similar securities through a national bank serving as trustee for the fund. Contributions for insurance annuities will be placed with major insurance companies at a guaranteed interest rate. Participants in the AMA program investing in annuities will also share in excess profits earned by the insurance companies.

The program will be managed by an administrative board composed of the executive committee of the AMA Board of Trustees.

AMA officials said the association's retirement plan will provide advantages of diversity of investment, with attendant factors of safety and the possiblity of long-term growth, coupled with annuity insurance. A variety of investments will be open to the plan which are not really available to the individual.

Participants will also benefit from low cost resulting from mass buying and the availability of basic records at the AMA. In addition, officials said, the AMA plan offers mobility, which may not be available in other retirement plans. Many plans are restricted to the participants locality and when he moves from the area, he is dropped from the plan. Under the AMA plan, however, a member can relocate anywhere in the world and retain his membership in the plan so long as he remains self-employed and a member of the AMA and keeps his United States citizenship.

New Fellows Named

Six Arizona physicians recently attained the degree of fellowship of the American College of Surgeons at their annual Clinical Congress. The world's largest organization of surgeons has grown from 450 members to a total international membership of approximately 26,200 Fellows in 79 nations in the span of 50 years.

Inducted at a formal ceremony were doctors James D. Alway, Lee B. Brown, Daniel T. Cloud, Jr., David C. James, Laurence M. Linkner and Max L. Wertz, all of Phoenix.

★ ★ ★

Arizona Doctors Serve At Anesthesiologists Meeting

Serving in an official capacity at the recent annual meeting of the American Society of Anesthesiologists held in Chicago were three Arizona anesthesioligists. Doctor Benjamin Herzberg served as a Director in the House of Delegates, Doctor William N. Henry served as delegate and Doctor Dana Lee Harnagel was an alternate delegate. Problems studied at the meeting included that of ways to alleviate the critical shortage of anesthesiologists in the United States which has become an alarming problem. Several recommendations were made and will be carried out by the policy making body of the group.

★ ★ ★

Dermatologists Meet

The Arizona Dermatological Society held its fall meeting in Tucson on October 5th at St. Elizabeth's Clinic. Presiding officers were Dr. Robert Snapp, president, Phoenix, and Carl Berry, secretary-treasurer, Tucson. There were 18 dermatological cases presented, followed by a discussion of the clinical and histologic aspects of each case. A business meeting followed and then dinner with the wives at the Skyline Country Club. In attendance were Drs. Berry, Baker, Miller, Shapiro, Dahlen, and Schreiber from Tucson and Drs. Snapp, Jekel, Leibsohn, Snyder, Shanahan, and Light from Phoenix. The next meeting will be in Phoenix on January 25, 1964.

Cash Award
$200.00

The Arizona Medical Association, Inc. is proud to have offered to it by the MEAD JOHNSON COMPANY, INC., of Evansville, Indiana, its AESCULAPIUS AWARDS PROGRAM for our 1964 ANNUAL MEETING.

Some of the members of the Junior House Staffs have expressed interest in the AESCULAPIUS AWARDS PROGRAM and concern as to requirements for a scientific exhibit. It is our feeling that a truly scientific exhibit must express a definite theme and minimally consist of complete statistics, x-rays and photographs.

We urge all of these Junior House Staff men to participate in this program together with the other members of the Arizona Medical Association.

THE SCIENTIFIC ASSEMBLY COMMITTEE
W. Albert Brewer, M.D., President-elect, Chairman

SCIENTIFIC EXHIBIT APPLICATION FORM

Charles E. Henderson, M.D., Secretary
The Arizona Medical Association, Inc.
Post Office Box 128
Scottsdale, Arizona

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References: 1. Hopen, J. M., and Campagna, F. N.: J. Philadelphia Gen. Hosp. 5:20, 1954. 2. Lichtman, A. L.: Delaware M. J. 33:11, 1961. 3. Lichtman, A. L.: Ann. New York Acad. Sc. 68:196, 1957. 4. Golden, H. T.: Clin. Med. 2:583, 1955. 5. Stuteville, O. H., et al.: Am. J. Surg. 96:787, 1958.

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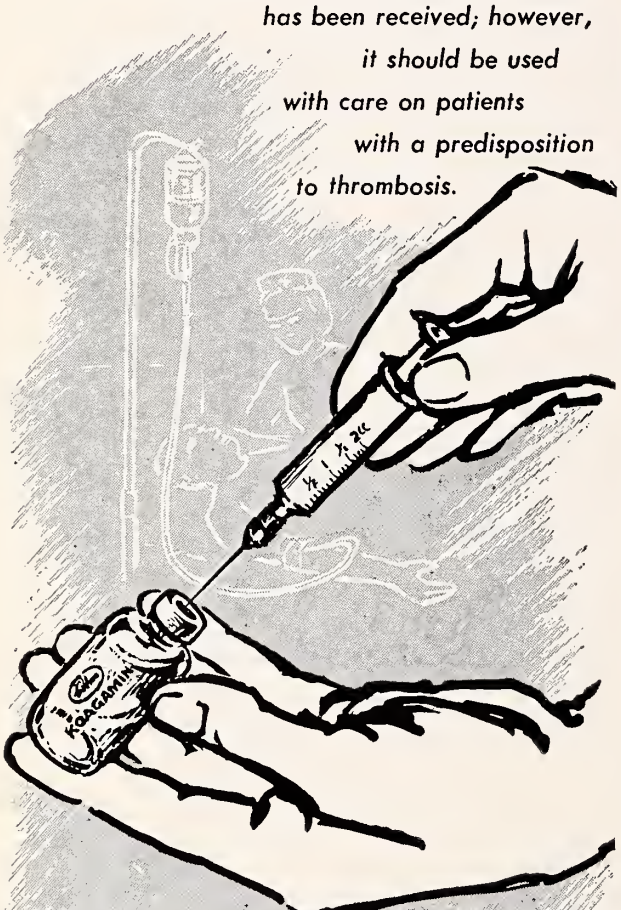
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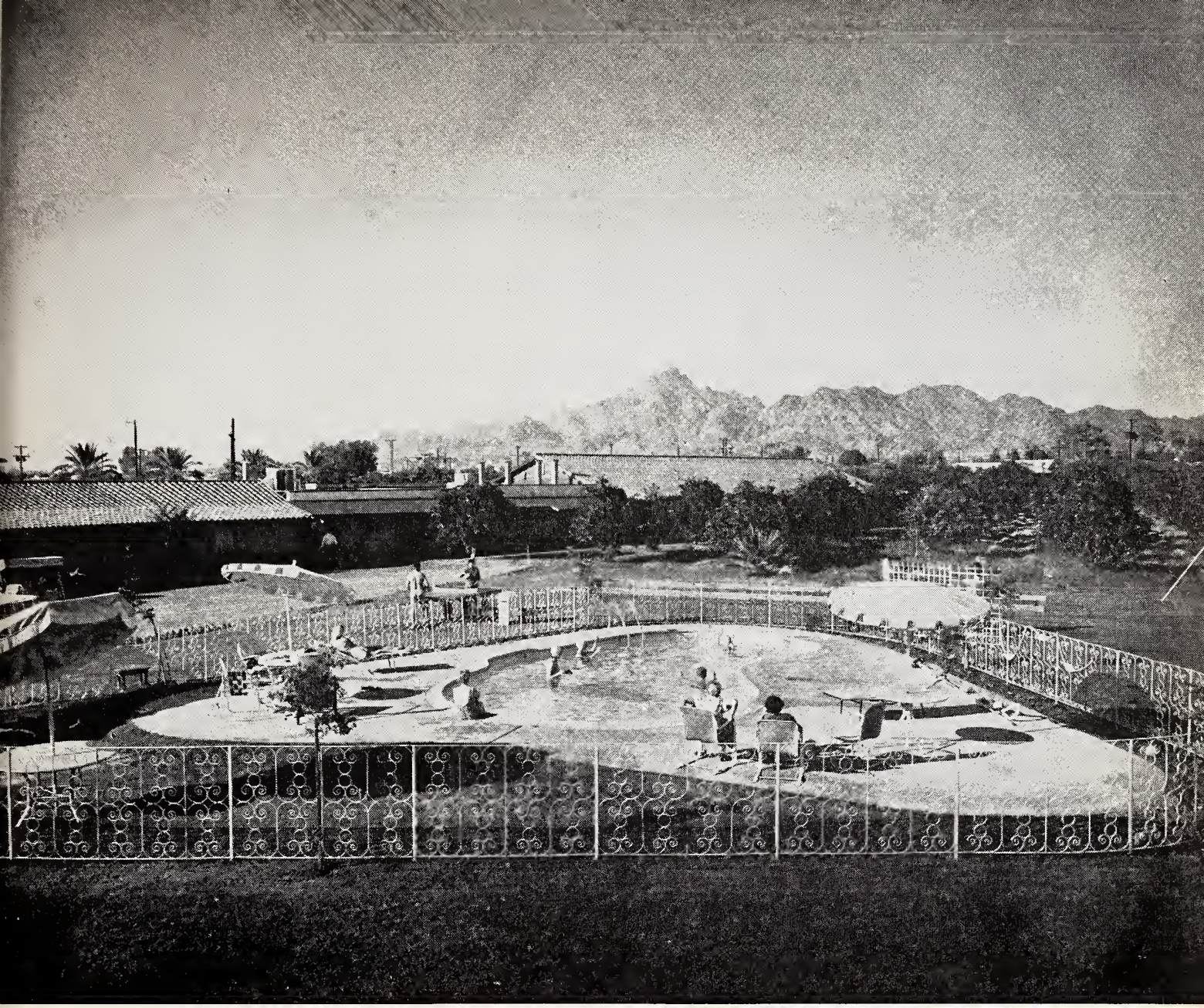


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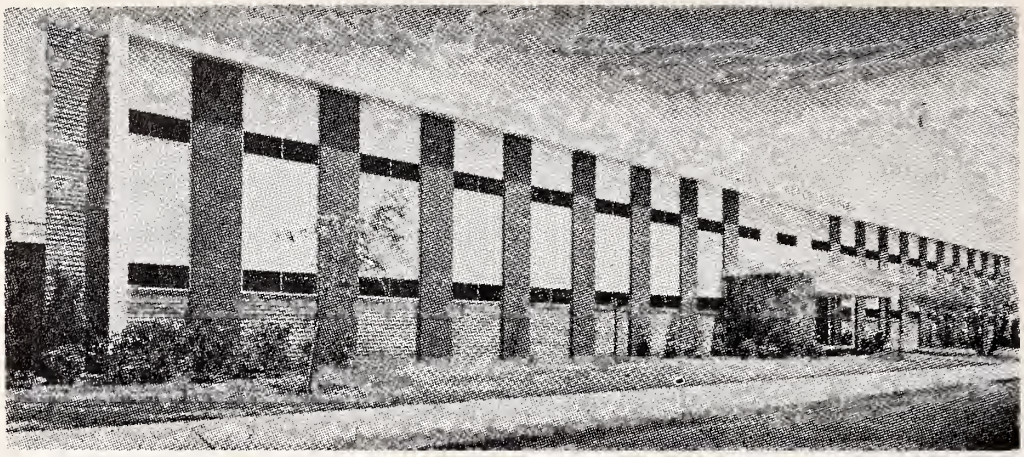
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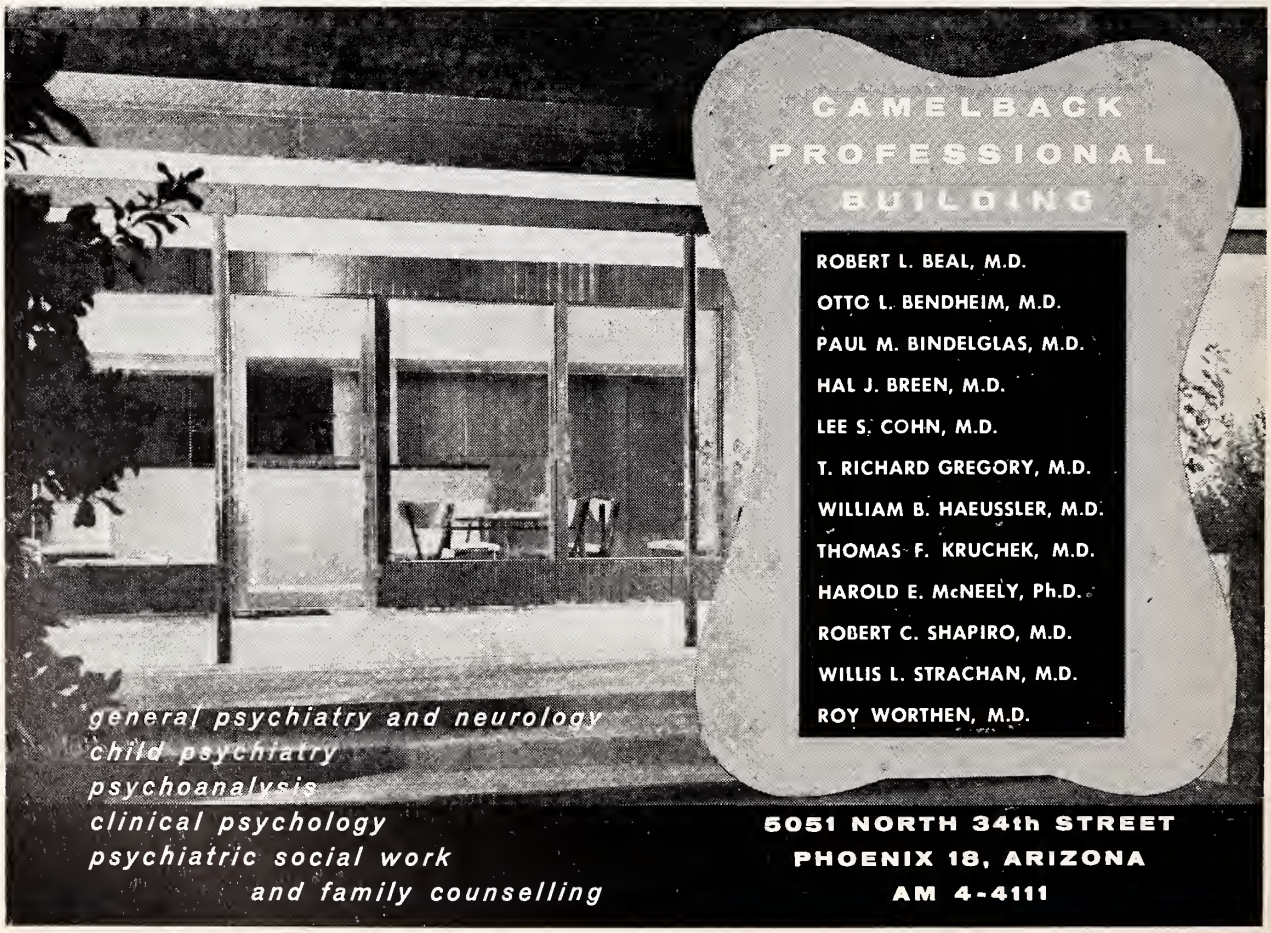
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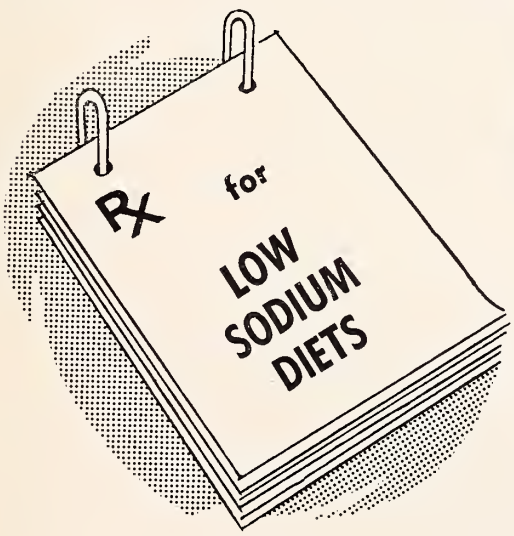
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